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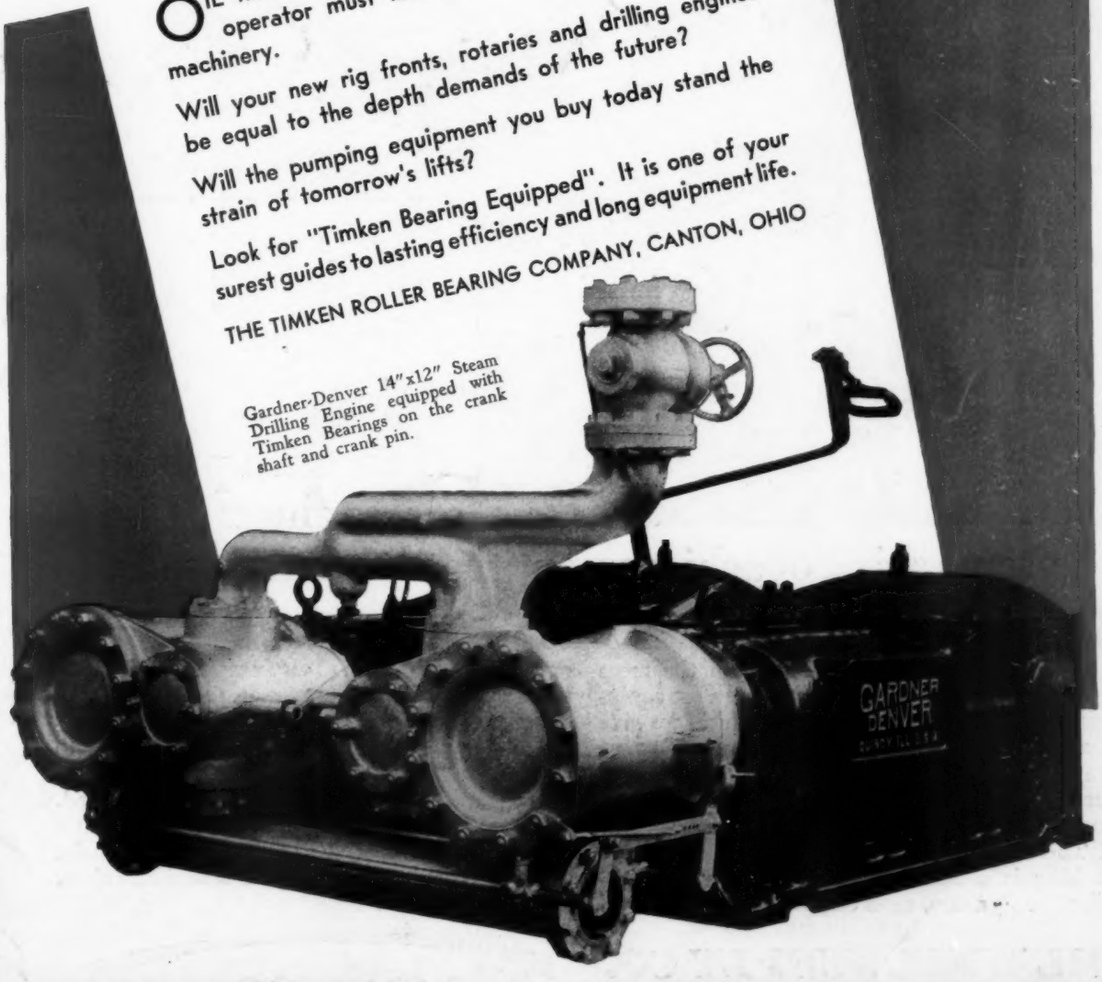

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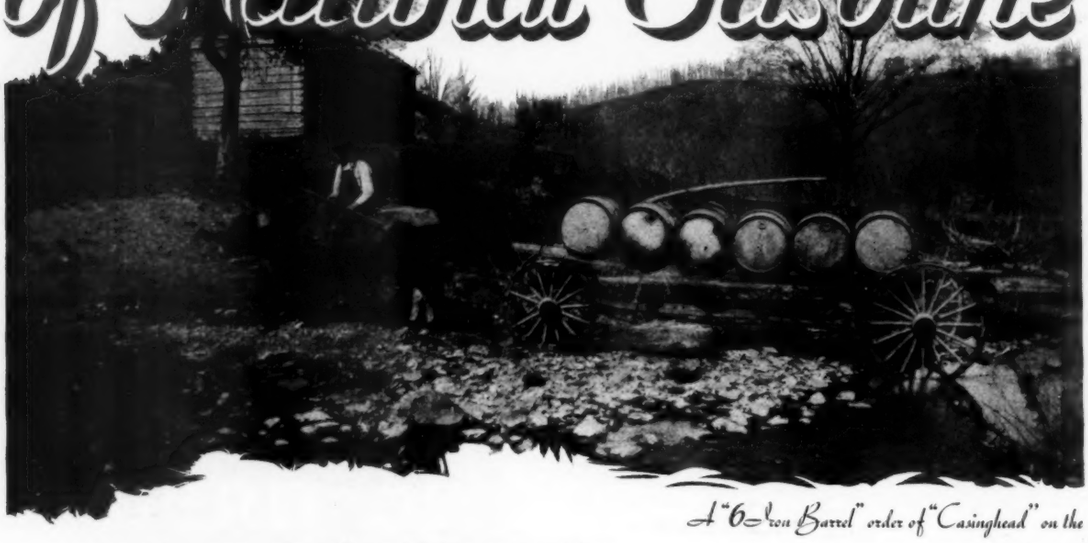

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Definite Action on Proposed Oil Legislation Will Aid in Clarifying Crude Production Situation

By ANDREW M. ROWLEY

ACTION by Congress on the Petroleum Administration's measure for control of crude oil production should help clarify a situation becoming clouded through increased production and seemingly authentic reports that the output of hot oil in East Texas has been showing steady gains. The Administrator has established a figure of 2,528,300 barrels daily as the average allowable crude oil production during June. It has not been possible to hold crude oil production to allowables set in the past and a little uneasiness is being felt that the output might become too high for a sound market.

While no pools of major importance have been discovered recently, field operations have been increasing and promising results have been obtained in a number of widely separated areas. It seems entirely probable enough new production will be developed to offset natural declines in the different fields.

The producing sand in the Cayuga area in Anderson County, Texas is thinner than many had expected which, it is anticipated, will reduce estimates of the ultimate production expected there. An effort is being made to find production south of the old Balcones Fault in Miller and Lafayette counties in Arkansas and operations in that state are showing a steady increase. During the past week, for the first time since the old El Dorado and Smackover boom days Arkansas recorded more new operations than other districts in the Louisiana-Arkansas-Mississippi territory.

A number of promising discoveries in the North Central Texas area have resulted in numerous new locations being staked and drilling has increased quite substantially. A second new producing area in San Patricio County, in Southwest Texas in a month was discovered there last week. The Louisiana area of the Gulf Coast section continues to attract attention. During the past week the Shell had promising showings in a deep test in the Roanoke area of Jefferson Davis Parish and some feel a new producing section might be opened there. An active drilling campaign is being conducted in the recently opened Bosco Field, in Acadia Parish.

The completion of a 7,500,000-foot gas well in Mecosta County, Michigan is regarded of importance because of the possible effect it might have on the proposal to construct a natural gas pipe line to Muskegon. It was desired to develop sufficient gas reserves first and it is felt this well shows the presence of greater natural gas reserves than had been anticipated in that section. Considerable interest was shown during the week in reports to the effect potentials of wells in the Oklahoma City Field have recorded a decline of 51 per cent during the past six months.

Crude Oil Production in the United States

Estimated daily average production for the week ending May 19, and a comparison with previous week and one year ago, follows:

	May 19	May 12	May 20, 1933
Oklahoma—			
Oklahoma City	198,830	232,525	167,115
Seminole-St. Louis	89,560	84,190	106,320
Remainder of State	240,175	229,635	194,115
Total Oklahoma	528,565	546,350	467,550
East Texas—			
Lathrop	216,930	216,120	421,945
Kilgore	157,675	157,080	297,860
Joiner	140,670	140,150	300,535
Total East Texas	515,275	513,350	1,020,340
West Texas	137,536	137,445	159,746
North Central Texas	89,153	90,062	69,055
Texas Panhandle	59,061	55,713	43,115
East Central Texas	50,172	49,695	58,442
Gulf Coast—Texas	171,715	172,357	183,325
Southwest Texas	58,059	46,755	55,254
Total State of Texas	1,080,971	1,065,377	1,589,277
Kansas	128,715	129,678	110,730
North Louisiana	26,325	25,540	26,195
Gulf Coast—Louisiana	56,954	57,365	41,453
Arkansas	30,655	30,660	29,915
Eastern Fields (excepting Michigan)	98,600	98,850	89,150
Michigan	32,499	29,295	16,850
Rocky Mountain area	86,670	87,560	73,011
California—			
Santa Fe Springs	41,000	43,750	54,000
Long Beach	66,000	67,250	73,750
Playa Del Rey	9,250	10,000	12,000
Elwood	12,600	12,250	13,500
Kettleman Hills	58,000	59,000	63,350
Remainder of State	308,150	301,750	268,400
Total California	495,000	494,000	485,000
Total United States	2,564,954	2,564,675	2,929,131

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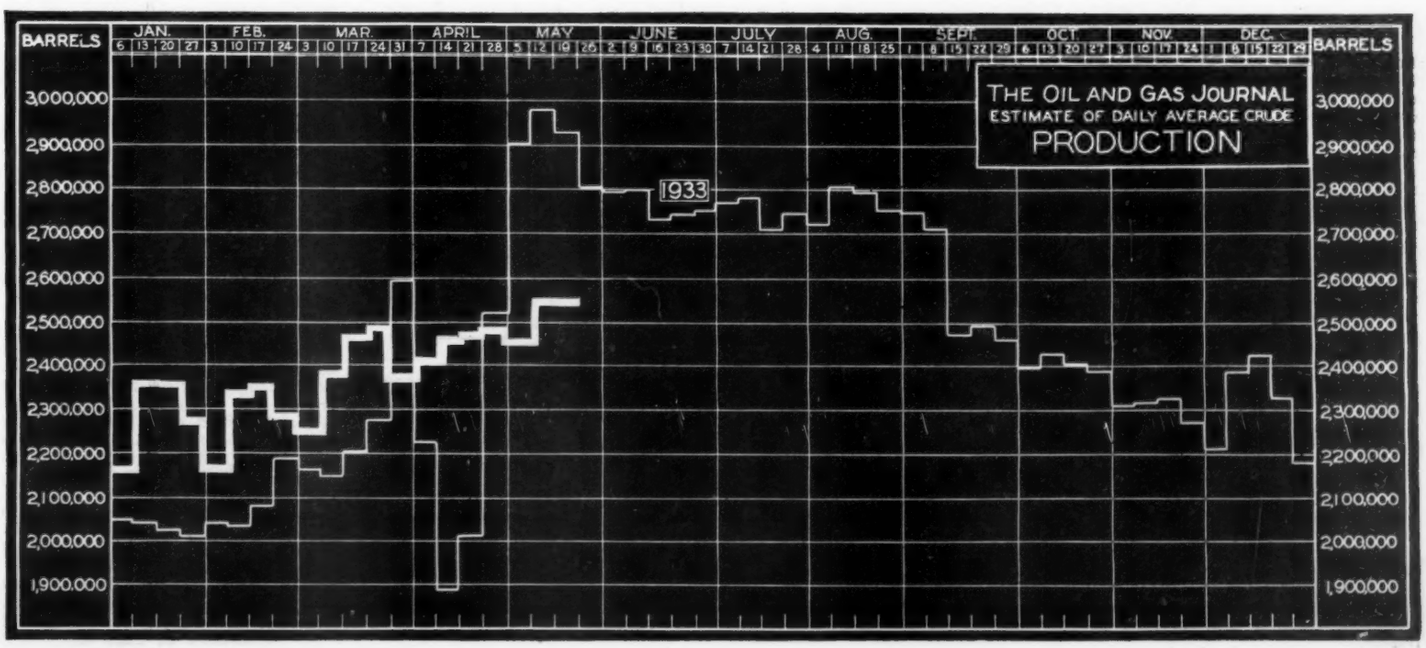


Oil Industry Increasing Its Importance as User and Manufacturer of Chemical Products

By C. O. WILLSON

NEW YORK, May 21.—With steady increases in new products the petroleum industry is rapidly developing a petroleum chemical division which has immediate and large potential possibilities in widening the demand for its products and adding to its profits. At the same time the industry is also enlarging the use of chemicals in its own manufacturing operations for the purpose of improving the quality of its products and reducing production costs.

These trends indicating that the petroleum industry is becoming more and more chemically minded were emphasized in several papers presented here this week at the twenty-sixth semiannual meeting of the American Institute of Chemical Engineers held at the Waldorf-Astoria. The papers presented by those connected with the chemical research and development divisions of the petroleum industry were important features of the three-day meeting in contrast to the situation of a few years ago in which chemistry as it relates to petroleum was of minor importance. An outstanding plant trip of the week for the membership and guests included the New Jersey refineries of the Standard Oil Co. of New Jersey made possible by Dr. R. T. Haslam, vice president and general manager of the Standard Oil Development Co., who is a director of the Institute.

R. T. Haslam, vice president and general manager of the Standard Oil Development Co. Mr. Haslam is a director of the American Institute of Chemical Engineers and was in charge of plant visits at the New York meeting

May Replace Coal Tar

Petroleum may largely replace coal tar as the raw material from which to secure aromatic hydrocarbons required in the manufacture of dyes and a large number of other chemical products, according to Carleton Ellis, consulting engineer of this city. Talking on the subject, "Prospects of a Petroleum Chemical Industry," Mr. Ellis, who has been prominently connected for several years in new petroleum refining processes, reviewed in considerable detail the latest developments concerned with the manufacture of chemical products from petroleum.

He explained that the advent of hydrogenation in petroleum refining in this country had added greatly to chemical production possibilities. He said the number, variety and quantity of aromatic hydrocarbons which are obtainable from coal tar are limited whereas through hydrogenation as applied to the heavy fractions of crude petroleum it was possible to secure directly large quantities of these compounds essential in the manufacture of chemical products now widely used in industry. Certain of these hydrocarbons also are obtainable through pyrolysis of oil. In connection with both hydrogenation and pyrolysis he pointed out that these processes add to the antiknock properties of gasoline and superior lubricating oils are also being manufactured through hydrogenation.

The commercial possibilities of producing alcohols from petroleum are constantly widening, according to Mr. Ellis. He explained the strong competitive position of petroleum in this field with its wide range of low cost alcohols when compared with production based on fermentation of grain and the several distillation processes associated with the early production of alcohols. In regard to ethyl alcohol obtained from grain and widely used as a solvent by various industries he pointed to the superior properties of the petroleum alcohols and predicted "we may some day find that ethyl alcohol is unsurpassed by other alcohols for but one purpose—for drinking."

Mr. Ellis also spoke of the application of petroleum chemical products in the soap and rubber industries. Raw materials for soap manufacture are now being produced. He explained that when petroleum wax is oxidized by being blown with air at a raised temperature, acids similar to vegetable oil acids are formed. These acids can be used in soap manufacture in essentially the same way as the acids from olive or similar fatty oils are used. From materials of pertoleum origin it is also possible to make products which possess increased cleaning characteristics and lather instantly in very hard water. These hard-water detergents are finding application in textile processing but they can also be used in the home. Shaving or shampooing with sea water with these detergents is as easy as in fresh water.

In the rubber industry, Mr. Ellis pointed to the rubber plastic manufactured from acetylene, now obtained from petroleum gases of refineries and gasoline plants. This rubber plastic has certain advantages including the characteristic of being insoluble in the usual rubber solvents and does not harden when exposed to certain materials which have a deleterious effect on the natural rubber. This plastic product is now being used in flexible hose used for transporting petroleum distillates.

Indicating the possibilities of products now considered as waste material or nuisances in the general refining operations, Mr. Ellis explained the use of the objectionable petroleum odors in fields and refineries. The products from which these odors come, are now being added to illuminating gas to warn consumers when leaks occur.

Use of Chemicals in Refining

P. C. Keith, Jr., and H. O. Forrest, of the M. W. Kellogg Co., traced the changes in oil refining methods from the days previous to 1920 when chemical treatment of oil products consisted largely in the use of sulphuric acid and "doctor" treatment for light oils to present-day methods in which a large number of chemicals are being utilized in a constant endeavor to improve quality of products and reduce costs where possible. The accompanying charts were presented showing the chemical application in refining in 1920 and modern day practice. The authors reviewed briefly the use of several solvents in the manufacture of lubricating oils, a development which has been expanding rapidly in new installations during the past year.

The authors expressed the opinion that refiners will be forced to manufacture motor oils having a viscosity index of 100 and a pourpoint of 0° F., if for no other reason than to meet the demands of the sales departments. Regarding the future use of chemicals in oil refining, they said:

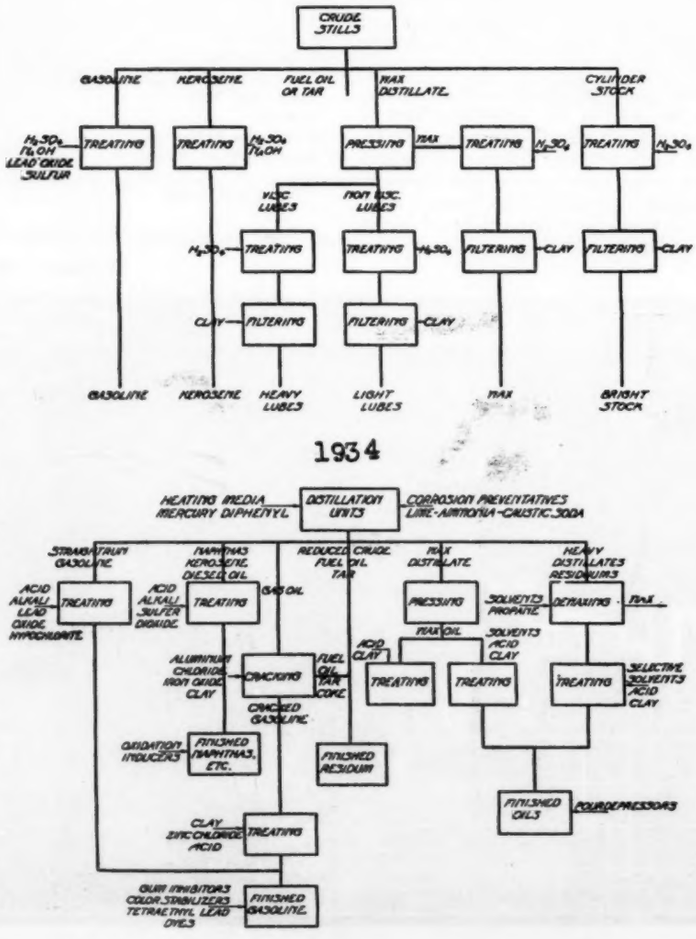
"Any prophecy of the future trend of chemical utilization in the petroleum industry is of necessity visionary, but it may be safely stated that it will continue to be toward more complex and selective materials, and that high yield of high quality products will be more and more important as the supply of high quality crudes decreases. Addition agents for increasing the apparent viscosity index and sludging characteristics of lubricating oils and competitive antiknock compounds for gasoline are probable developments. Catalytic cracking and the addition of some chemical during the cracking operation to produce high antiknock compounds directly in the gasoline are distinct possibilities for the future. Certainly the selective treatment of lubricating oils, and possibly of other fractions, is still in the preliminary stages from a chemical viewpoint, and considerable further development along these lines may be anticipated."

Fractional Distillation

Three papers based on research work in connection with fractional distillation as it applies to petroleum refining were presented at the meeting. The first paper, entitled, "Methods for Determining the Number of Equilibrium Plates," was given by G. G. Brown and Mott Souders, Jr., department of chemical engineering, University of Michigan. The same authors, with William W. Hesler of the University of Michigan, also presented a paper on the "Theoretical Comparison of Methods of Calculation." The third paper by Brown, Souders, H. V. Nyland of the University of Michigan, and E. G. Ragatz of the development department of

(Continued on Page 51)

Uses of Chemicals in Oil Refining—Past and Present



Senate Committee Opens Hearings on Oil Bill; Enactment Declared to Be Vitally Necessary

By HUGH D. MALLON
Washington Bureau, The Oil and Gas Journal

WASHINGTON, D. C., May 21.—With the introduction in the House of Representatives of the Federal petroleum bill by Representative Disney of Oklahoma, the road is opened for speedy enactment of this measure. The House committee on interstate and foreign commerce to which the bill has been referred will probably begin hearings on May 28.

The principal changes in the bill as introduced in the House are the insertion of a new section limiting control under the bill to a period of two years, and a provision for state regulations to prevail when considered effective in balancing the national supply with consumer demand.

Senate Committee Hearing

The Senate Committee on Mines and Mining, Senator Logan of Kentucky, chairman, began hearings on the bill Monday. Testifying in support of the bill, Secretary Ickes told the committee that production and shipment of hot oil, despite efforts of the oil administration and state authorities since the creation of the oil code, had increased during the last several months, both in East Texas and other states.

In opening his testimony, Mr. Ickes said: "There is an especial reason why the enactment of this bill at the present session of Congress is vitally important. We have been about to make real progress toward the stabilization of the petroleum industry under the code but we have reached a critical point where its future effectiveness in maintaining the improved conditions of the industry is very doubtful. There are many loopholes in its provisions. The penalties for violations are woefully inadequate.

"To make bad matters worse the code has been declared invalid by the Federal District Courts of Texas. Our hands are completely tied in that most important jurisdiction. The production of hot oil has been on the increase for the past several months, not only in Texas but in other producing states.

Congress Only Relief

"The illegal production in the East Texas oil field alone at the present time has been estimated at approximately 60,000 bbls. a day. Disquieting reports are being received from reliable sources that much greater illegal production is being held down at this time in order not to create an aggravating situation before Congress adjourns, and that if Congress adjourns without passing the bill, we may expect to see a resumption of the conditions existing in the spring of 1933."

Mr. Ickes told the committee he is receiving a large number of telegrams and letters every day from independent operators, landowners and petroleum associations pointing out the seriousness of the situation and indorsing passage of the bill.

"In my opinion," he declared, "the overwhelming majority of the industry is in favor of this legislation. To fail to render them this protection is apt to precipitate a demoralized situation in the petroleum industry which would seriously affect our entire recovery program."

"It is my deliberate opinion that stabilization of this industry is impossible until an effective check can be placed upon the movements of the excessive supplies existing at the present time, far beyond our current market requirements," he declared. He pointed out to the committee the potential daily production of this country today is variously estimated at between 7,000,000 and 14,000,000 bbls., as against a consumption of but 2,500,000 bbls. The East Texas Field alone could produce several times as much oil daily as is needed to supply the market demand, he continued.

"With this tremendous potential capacity requiring only the turn of a valve to deluge the markets with a flood of oil, the failure to establish an effective check upon the movements of oil into channels of commerce would be to invite disaster."

H. B. Fell Favors Bill

Testifying on the behalf of the Independent Petroleum Association of America, H. B. Fell of Ardmore, Okla., executive vice president, told the committee that the association, through its directors, had indorsed the administration bill unanimously last week. Mr. Fell asserted that state production control in the East Texas Field has broken down again and that the industry is again facing chaos. "The Federal Government is the only authority we can turn to in this crisis," he declared. "If this bill is not enacted into law, there will be a complete national breakdown in production control, with bankruptcy facing the crude oil industry, before Congress again convenes."

Carl Estes of Tyler, Tex., told the committee "the East Texas Field is being plundered by a band of thieves which would put the racketeering of Al Capone to shame. These thieves have literally honeycombed the underground of the East Texas Field with modern devices in order to steal the oil of honest operators."

Explaining that he had first opposed state production control and then Federal action, Mr. Estes said he had been forced to turn around because of the activities of these "thieves."

W. B. Hamilton of Wichita Falls, Tex., told the commission that he was in full accord with the statement of Mr. Estes. He said the West Texas Chamber of Commerce had voted unanimously to indorse the measure.

He declared that the group of Texans who are opposing the present bill "is the same crowd that has always opposed control of production." We have had to fight these men since the day we first began the struggle to secure proration by state law."

John E. Shatford, president of the Louisiana-Arkansas Refiners Association, a member of the planning committee and independent refiner, testified that independent refiners generally were in accord with the proposal and believed they would benefit from its enactment. He proposed extension of the provision of the bill to include the new refinery control provision of the oil code, which will expire when the code dies next year.

Thompson Opposes

Texas Railroad Commissioner E. O. Thompson challenged the constitutionality of the measure, declaring that in his opinion it cannot possibly stand the test in Federal courts.

"It is a direct invasion of the sovereign rights of the State of Texas," he declared. "If enacted, it would make Texas a subdivision of the Department of the Interior with no appeal possible.

"If we don't like the way our public officials run our public affairs in Texas we can elect somebody else to office. As a matter of fact, I imagine the agents of the Railroad Commission stationed in the East Texas Field are as capable as any agents the secretary might send down there. There is nothing particular about Washington that gives people coming from there a halo about their heads."

In reply to the charges made against the commission's enforcement of state proration, Thompson declared: "We are doing a darn good job of it, reports to the contrary notwithstanding.

"The whole job has been a most difficult one. We have had to act through the trial and error method. Today, for the first time since we started, the Railroad Commission is free of injunctions, and can act without legal obstacles."

Statement by Ickes

Secretary Ickes, oil administrator, issued the following statement with respect to the revised administration oil bill:

"The revisions, except for the inclusion of a provision for state regulations to prevail when considered effective in balancing the national supply with consumer demand, merely clarify the wording of the bill as introduced April 30, by Senator Thomas of Oklahoma, and do not change the basic aim of co-ordinating state and national conservation efforts.

"The bill in its revised form was worked out carefully in co-operation with spokesmen for virtually all the industry and is endorsed by them as a vitally necessary part of the co-operative program between the Federal Government, the states and the industry to prevent demoralization of the industry and waste of petroleum resources.

"There was a provision in the revised bill for paying a salary of $12,000 to members of the Petroleum Administrative Board. Representatives of the industry insisted upon including this salary in the draft of the bill, but I feel that the subject of salary is one best left to the discretion of the Congress and have removed the figure from the draft.

"I wish to call the particular attention of the oil industry to the fact that this bill does not require drillers to seek in Washington permits for drilling. As part of the campaign of misrepresentation carried on by them, representatives of the 'hot oil' interests are broadcasting through the oil states that the bill requires such action. There could be no statement more false.

"In view of the approval by the vast majority of the industry of the fundamental principle of keeping production balanced with consumptive needs, as proposed in the bill, I feel that the opposition which we may expect will come almost altogether from the interests willing to wreck the industry in their greed for profits from hot oil.

"I hope that Congress will approve the bill before adjourning, and thus recognize the necessity for sound legislation to conserve our oil resources and to prevent the destruction of the industry by a small group. This legislation is absolutely essential if we are to continue the steady progress toward recovery and economic stability which we have made under the oil code."

Statement by Judge Beaty

Amos L. Beaty, chairman of the Planning and Coordination Committee, issued the following statement:

"Our committee strongly favors the oil control bill as agreed upon with the administrative board and approved by the Secretary of the Interior. This bill was submitted by the Secretary to Congressman Disney and was introduced by Mr. Disney in the House, H.R. 9676. The House bill answers objections made by the industry to the Senate bill. It will doubtless be offered in the Senate Committee next week as a substitute for the Thomas Bill, S. 3495. Mr. Disney, however, inserted Section 20 which would limit the life of the law to two years. On this point our committee is divided and I am speaking now only as one member and in my personal right. I oppose the limitation for the following reasons:

"1. There is every indication that at the end of two years the nation's potential production of oil will be as large as it is now.

"2. Since 1926 we have taken over 7,000,000,000 bbls. from the ground and

(Continued on Page 32)

Give Congress Views on Production Control

Owing to the comparatively short time remaining before the adjournment of Congress, it has been suggested that oil men throughout the country communicate quickly with their senators and congressmen informing them of their views in regard to the crude oil production control bill now before Congress. Such views would help crystallize sentiment in Congress either for or against the measure with the result the industry probably could ascertain more quickly whether this proposed legislation will be enacted at this session of Congress. The Senate bill has been referred to the committee on Mines and Mining of which Senator M. M. Logan, of Kentucky, is chairman. In the house the measure has been referred to the Interstate and Foreign Commerce Committee of which Represenative Sam Rayburn of Texas is chairman.

Circuit Court Reverses Amazon-Panama Cases

NEW ORLEANS, La., May 22.—The U. S. Circuit Court of Appeals today reversed the decision of Federal District Judge Bryant at Tyler, Tex., February 21, in the cases of the Amazon and Panama companies, and dismissed the cases. These were the cases which hindered the enforcement program of the Federal oil administration in East Texas, the constitutionality of the code now being upheld.

Exposition Closes With Many Records Broken, Everyone Expresses Satisfaction at Results

By L. G. E. BIGNELL
Petroleum Engineering Editor

The eighth International Petroleum Exposition will go down in the history of the industry as definitely marking the upward turn of business in this country's second largest industry and as bringing together in Tulsa leaders from every branch of the oil business who have discussed their problems and viewed with much interest those things that have been developed since the seventh Exposition was held in October, 1930. Everyone remarked upon the vast improvement that has been made and it is estimated fully 95 per cent of the exhibits were either of entirely new or greatly improved equipment.

This marked improvement in equipment and methods and the general desire by all interested in the petroleum industry to acquire first hand knowledge of these conditions may account for the record breaking attendance. The official records indicate 142,863 paid admissions.

The booths were well arranged and many displays were actually beautiful in character and co-ordination. Many novel features were introduced to attract and hold the attention of the visitor and without exception the attendants in charge of the exhibits were well versed in their particular product and quite willing to expound its virtues and benefits. And the satisfying feature is that a great many did stop to ask questions and learn about the exhibits and this group included every type of person interested in the industry from executives of large companies to field workers.

It was remarked upon by many exhibitors that they had contacted more executives of companies in every phase of the industry at this Exposition than ever before. These men were of the class who influence and have the authority to place business and in addition to their interest it was also noted that every class of employe ranging to the men in field and refinery who handle the crude and products were visitors and showed as much interest as the officials of their companies.

This show of interest indicates the reawakening of the industry and the desire by all concerned to improve operations and reduce costs. All exhibitors reported they had contacted men through whom they had either received orders during the show or from whom they expect to get business later. It marks a distinct revival of buying.

A questionnaire has been handed to the exhibitors asking their opinions as to when the next Exposition should be held and decision on this matter will be deferred until these answers are received. The board of directors of the Exposition is to meet in about three weeks.

Secretary Ickes Visits Tulsa

The highlight of the Exposition was the visit of Secretary of the Interior Harold L. Ickes, who came to Tulsa by airplane to see at first hand the progress made in this industry of which he is administrator for the Government, and following his address at the Coliseum he was driven to the Exposition grounds and personally requested the opportunity of walking through the buildings to see the exhibits. Mr. Ickes expressed surprise at the scope and magnitude of the display.

The visit of the Secretary of the Interior climaxed the midyear meeting of the Independent Petroleum Association of America held in the Hotel Mayo and called to order at 10 a.m., May 17, by Col. Harold B. Fell, executive vice president, who presided in the absence of Wirt Franklin, president of the association, who was forced because of illness to refrain from participating in the activities much as he desired to do so.

Following a short business session, J. D. Collett, regional general chairman, District No. 4, delivered an extemporaneous address upon "Proration Under the Code," stating he was "pinch-hitting" for Charles F. Roeser, who was detained in Washington. Mr. Collett recommended support of the control bill giving authority to the Federal oil administrator. Mr. Collett said that "not wishing to embarrass any organization or any committee or any other one of the boards of which I happen to be a member or active, I'll speak strictly personally for myself as an independent operator, and say that I am firmly sold on the idea that this measure is necessary for the future success, progress, and stability of the oil business, and I shall continue to heartily support it."

Majewski's Views

B. L. Majewski, member of the Planning and Coordination Committee, addressed the meeting on "Marketing Under the Code," and said in part: "The reason I voted for the Thomas Bill in the Planning and Coordination Committee was that it gives a degree of permanency to the oil administration. My personal opinion is that the NRA is dead, and being dead and ineffective it means that in 1935, on June 1, there will be no oil code, but as an independent I think we have got to have the finger of the Government in to bring all of us together.

"The facts are that nobody will be prosecuted in the Supreme Court under

HOLLIS P. PORTER
New Chairman, Mid-Continent Division, A.S.M.E.

the present NRA law and anyone who has the money to appeal to the Supreme Court will find it continued to fall or next spring and then after that there will be no NRA because you don't find anybody in the Democratic great majority rising up to its defense.

"What is going to happen to this whole oil picture is a question. I think that with Secretary Ickes backed by an oil control bill, such as is proposed, it will bring him into the picture, and keep him there. I also think the bill can be so amended that prosecution for violation under that oil control bill and under the oil code can be made by the oil administrator; that he does not have to go out and get it from some other 'red tape' department, getting permission to file a complaint against somebody. Now you've got to have some legislation and you have got to have it so no one can evade it, no matter how ingeniously; and then you have to have some enforcement. You know, after a certain amount of moral suasion even a good saint becomes contemptuous and all there is today is contempt for this code and it is ever increasing."

In closing Mr. Majewski said, "Something has to be done about rehabilitating markets and it has got to be done quickly. If it is not done there is a movement on foot to cut the price of crude. There is no reason for refining $1 crude oil and getting 68 cents a barrel back for it, and the 68 cents isn't by chiselers, either. It is by honest reputable merchants who have to meet competition. That is all we are doing now. Rule 4 was written so it would prevent price cutting and selling under cost. It does not mean a thing. It is not worth the paper it is written on. Therefore, we find ourselves in an orgy of price cutting, the like of which we have not seen in many years. Now you are not so secure in your $1 crude oil, and you got $1 crude not because you stabilized crude oil production. You got it because the lash was applied to raise the price to $1 and the lash is still clicking. If they reduce the price of crude below $1, price fixing will come in; but merely giving you relief from the crude oil end is not stabilization."

The papers presented by Paul G. Blazer, Ashland Refining Co., Ashland, Ky., on "Refining Under the Code," and by W. J. Brundred, Oil City, Pa., "Problems of the Stripper Well Operators Under the Code," are published elsewhere in this issue of The Oil and Gas Journal. Also the address of Secretary Ickes.

For Oil Control

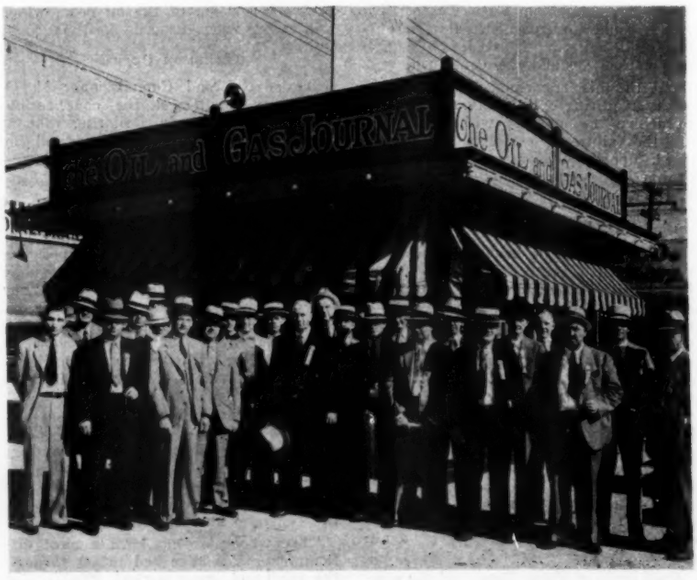
Recognizing the need for Federal authority to enforce its rulings under the oil administrator, the Independent Petroleum Association of America adopted the following resolution and recommended copies be sent to the President of the United States, Secretary of the Interior, the chairman and members of the Senate Mines and Mining Committee and the House Interstate and Foreign Commerce Committee.

"Be it therefore resolved by the Independent Petroleum Association of America, represented by its directors in session at Tulsa, Oklahoma, Thursday, May 17, 1934, that we favor federal legislation at this session of Congress which will make effective the efforts of the state regulatory bodies in adequately bringing about unified control of production of crude oil and transportation of the same.

"Be it further resolved that we specifically recommend the following principles to be included in such legislation:

"1. The limitation of imports of crude petroleum and its refined products, including natural asphalt, to the average monthly rate of the last six months of 1932.

(Continued on Page 43)



Group of Stanolind Pipe Line Co. officials and employes attending the International Petroleum Exposition, Tulsa. Left to right: H. M. Jaco, C. W. Dawson, J. J. Jaco, C. A. Childers, J. J. Ashley, O. C. Trickett, P. L. Chapman, C. F. Gray, R. T. Scott, R. S. Ellison, President; L. E. Jennings, J. C. Burch, J. E. Polston, J. J. Willenberg, F. M. Willenberg, D. T. Hawkins, E. E. Smith, S. W. Watson, J. J. Dougherty, O. H. Powell, B. P. Sibole, J.J. Cartmill, G. E. Ogilvie and J. M. McNally

Rehabilitation of Pennsylvania Grade Industry Is Progressing Rapidly Along Sound Lines

By ROBERT C. CONINE

OIL CITY, Pa., May 19.—Rehabilitation of the Pennsylvania Grade crude oil industry is progressing rapidly along the sound lines of modernization of production and manufacturing methods and merchandising policies. The region expects the oil industry as a whole to benefit from the oil code, and has recorded its sentiment strongly in favor of supporting Federal statutes, but, while they have their trust in President Roosevelt, they intend to keep their powder dry. The past few months have witnessed wholesale amandonments of venerable batch batteries, cold settling tanks, and the like, and the installation of fractionating towers, lub and naphtha rerun units, centrifuges, cracking and reforming plants, etc. In crude oil production operations the adoption of pattern networks and other improvements in water flood and air-gas drive is becoming general. In the marketing branch of the business progress has not been apparent, but there are indications that this year will see important developments in this department.

The ranges in unit costs in producing, refining and marketing, are strikingly significant in the Pennsylvania Grade oil region. Production costs range from 30 cents a barrel to more than $3.50 a barrel; refining costs and costs of merchandising vary nearly as much for the different refiners. For instance, it was reported recently to the oil administrator that the average cost of primary distillation for the region's refiners is 30 cents per barrel of crude oil processed, yet several refiners show a cost considerably less than half of this figure. On a basis of cost per barrel of crude oil throughput, one refiner's marketing costs on refined products averages 10 cents, while another must charge 30 cents.

Revisions in Refinery Operations

Allocation of gasoline production has brought some important revisions in refinery operations. The gasoline cut in primary distillation now represents about 25 per cent of the barrel of crude rather than 35 to 40 per cent. A wide naphtha cut has been added, and where the equipment is available this material is reformed and blended back with low endpoint straightrun fraction. The following table shows a typical realization on a barrel of Pennsylvania Grade crude oil:

TABLE 1—REALIZATION ON BARREL OF CRUDE*

Product—	% Bbl. crude	Gallons	Market price (cents)
Gasoline	25	10.5	55.125
Naphtha	10	4.2	20 475
Kerosene	20	8.4	36 750
36-40 Distillate	18	7.56	29 265
200 Neutral	6	2 52	78 120
150 Bright stock	15	6.3	181.125
Wax (lbs.)	2	.84	19.250
Petrolatum (lbs.)	4	1.68	15.000
	100	42	435.110

*Loss not taken into account.

Unit prices are quoted as follows (and it is far from certain that the refiner can move material at these quotations): Motor gasoline, 5.25 cents; naphtha, 4.875 cents; kerosene, 4.5 cents; 36-40 distillate, 3.875 cents; 200 neutral, 31 cents; 150 bright stock, 28.75 cents; wax, 3.85 cents; petrolatum, 2 cents.

The U. S. Tariff Commission reporting refining costs in 1931 to the House of Representatives showed the following for the Appalachian district (in cents per barrel of crude oil):

TABLE 2—REFINING COSTS

	Cents
Direct operating costs:	
Operating labor	13.97
Fuel	11.41
Chemicals	12.18
Repairs and maintenance	6 61
Other supplies and expenses	2 01
Royalties	2 74
Services by plant utilities	15.54
Other	1.63
Total direct costs	66.09
Indirect operating costs:	
Refinery overhead	8.57
Taxes on plant	2 04
Insurance	2 21
Depreciation on plant	13.02
Total indirect costs	25.84
Total operating costs	91.93
Loading expense	1.75
General and administrative expense	7.26
Interest	19.34
Total	120.28
Adding laid-in cost of crude oil	280.00
	400.28
Remaining for marketing expense and profit	34.83

Principal Problem

In a paper read before the Cleveland meeting of the National Petroleum Association (April 26 issue of The Oil and Gas Journal), J. B. Fisher, of Kendall Refining Co., pointed out that the principal problem of the small Pennsylvania refiner is the disposal of 35 to 40 per cent of the barrel of crude represented in straightrun gasoline. Mr. Fisher advocated the installation of cracking or reforming units. He took note of two plans for improving this straightrun gasoline; one by reforming at various nearby plants equipped for the work, and the other by construction of a central reforming plant to which all the manufacturers of straightrun who have no facilities can ship their material for improvement in antiknock quality.

The fact is that while straightrun gasoline in the above realization table is shown to bring 55⅛ cents per barrel of crude processed, this return is highly theoretical, and many refiners and marketers contend that straightrun Pennsylvania Grade gasoline is moved with difficulty below this price. It had been a practice to sell this material to major companies, but this policy is far from dependable.

There is a large market for the better antiknock gasoline in the area bounded on the west by Columbus, Ohio, on the north by Syracuse, N. Y., on the east by Harrisburg, Pa., and on the south by middle West Virginia. In his paper, Mr. Fisher said that the familiar 33-refinery group produced only about a quarter of the gasoline consumed in this area in 1933.

One plan for reforming the heavier part of the gasoline cut (assuming that straightrun gasoline of 280 endpoint or thereabouts is taken out) calls for handling 2,500 bbls. per day of the naphtha on a reforming operation to produce 70 octane number gasoline by reforming 40 per cent of the total straightrun cut and adding 0.75 c.c. tetraethyl lead after blending back with the low endpoint part. If 1.5 c.c. is to be added then only 20 per cent of the entire gasoline and naphtha cut is reformed. This plan also calls for cracking considerable of the 36-40 distillate cut to add $363 to the value before fixed charges on the plant. In this latter operation a yield of 70 per cent gasoline, 25 per cent fuel oil and gas, and 5 per cent loss is assumed.

Specialties

However, improvement of the gasoline straightrun fraction, while important, is far from being the only means whereby the refiners can cut their unit manufacturing and marketing costs. Several refiners in the region have seen this and are producing as many as 10 special naphthas, and scores of "specialties." One refiner in western Pennsylvania is making more than 200 lubricating oils and greases of different specifications from Pennsylvania grade crude oil. This refiner is also taking fullest advantage of the range burner and Diesel engine marketing fields. There are four or five refiners in the region doing likewise, but the number that still depend upon neutrals and bright stocks to carry them far exceed this progressive group, and it is not unreasonable to point out that the failure of a large number of refining units to make the most of the crude oil places a serious drag upon the price of crude oil.

Commensurate improvements all along the line of production, refining and marketing, plus a policy of retaining a close balance between supply and demand, would reward operators in all of these divisions of the industry. However, improved production methods in the lower fields and increased output might call for a readjustment of production in other Pennsylvania Grade fields; lower refining costs and extended lines of products might easily resolve bright hopes into vicious price competition which would completely undo all of the achievements of engineers and technologists. It has been pointed out that the motor fuel market available is 75 per cent larger than the supply from the region refineries, but the market for lubricating oils covers the entire country, and competition based on price and quality is becoming keener.

Stocks of Neutrals

Currently, the Pennsylvania Grade refiners cannot produce sufficient neutrals to meet their requirements. Stocks of neutrals of Pennsylvania Grade at present are around 3,000,000 gallons, or less than half of what they have been at the lowest period since 1931. However, straightrun gasoline stocks are excessive. Unless the straightrun can be made readily marketable it will be necessary to increase the yield of neutrals, i.e., return to a 150 viscosity material, rather than at 180 at 100° F., or what is commonly called 200 neutral (70° F.). However, the question of 150 neutral versus 180 neutral is one of the most hotly contested

(Continued on Page 44)

TABLE 4

Date, 1932—	Daily average production— New York	Penn'a.	W. Va.	E. and C. Ohio	Appal-lachian	Penn'a. Grade	Indicated daily demand	Short and excess daily production
January	11,000	34,000	11,000	9,000	21,000	60,000	54,000	6,000
February	10,000	33,000	11,000	9,000	21,000	58,000	54,000	4,000
March	10,000	33,000	10,000	10,000	22,000	58,000	60,000	*2,000
April	10,000	37,000	12,000	10,000	22,000	64,000	62,000	2,000
May	10,000	37,000	11,000	10,000	21,000	63,645	58,774	4,871
June	10,000	37,000	12,000	11,000	23,000	64,933	63,400	1,533
July	10,000	33,000	10,000	9,000	22,000	57,581	55,613	1,968
August	9,807	33,903	10,871	9,677	23,710	59,194	59,226	*32
September	9,233	32,300	10,233	9,666	26,733	56,300	55,133	1,167
October	8,548	31,516	10,419	9,161	21,323	54,936	55,161	*225
November	8,600	32,066	9,566	9,200	21,000	54,766	56,133	*1,367
December	8,452	31,645	9,549	9,000	19,355	53,903	55,290	*1,390
1933—								
January	8,161	31,416	9,484	8,806	18,774	53,258	56,871	*3,613
February	8,571	32,214	9,357	8,893	16,643	54,392	55,607	*1,215
March	8,774	32,613	9,226	8,960	17,065	54,774	55,732	*958
April	8,166	33,066	9,600	8,800	16,166	55,133	56,000	*867
May	7,193	33,710	10,097	8,355	16,064	55,000	59,065	*4,065
June	8,533	35,333	10,533	8,400	14,966	58,700	64,833	*6,133
July	8,064	34,839	10,419	8,677	18,000	57,645	67,806	*10,161
August	9,032	35,871	11,516	9,613	17,266	61,226	66,452	*5,226
September	9,533	36,933	11,300	9,166	18,333	62,333	71,233	*8,900
October	9,419	38,323	12,032	9,645	18,355	64,709	61,936	2,773
November	9,360	36,333	11,133	8,900	17,433	61,200	63,233	*2,033
December	9,612	34,742	10,516	8,226	16,645	58,871	63,032	*4,161
1934—								
January	9,871	37,161	10,968	8,677	16,032	62,365	61,086	1,279
February	8,786	34,000	10,393	8,036	15,710	57,107	71,214	*14,107
March	10,097	39,419	11,742	9,032	16,806	65,677	63,935	1,742

*Short.

Date, 1932—	Penna. Grade oil stocks— At refineries	In pipe lines	Total Penna.'s Grade stocks	Prices National— Transit line and Pennzoil Group A
January	1,776,000	5,017,000	6,793,000	12-16-32 $1 80
February	1,911,000	5,011,000	6,922,000	
March	2,066,000	4,814,000	6,880,000	3-14-32 1.77
April	2,111,000	4,819,000	6,930,000	4-25-32 1 97
May	2,056,000	4,917,000	6,973,000	
June	2,062,000	4,957,000	7,019,000	
July	2,151,000	4,929,000	7,080,000	
August	2,143,000	4,936,000	7,079,000	
September	2,132,000	4,982,000	7,114,000	9-13-32 1 82
October	2,183,000	4,924,000	7,107,000	10- 3-32 1 67
November	2,106,000	4,930,000	7,036 000	
December	2,135,000	4,858,000	6,993,000	
1933—				
January	2,134,000	4,719,000	6,853,000	1-19-33 $1.52
February	2,170,000	4,649,000	6,819,000	1-21-33 1.42
March	2,191,000	4,599,000	6,790,000	
April	2,168,000	4,596,000	6,764,000	
May	2,227,000	4,411,000	6,638,000	5- 9-33 1 22
June	2,187,000	4,267,000	6,454,000	5-22-33 1.22
July	2,048,000	4,091,000	6,139,000	6-17-33 1 42
August	2,005,000	3,977,000	5,982,000	6-26-33 1 52
September	1,945,000	3,769,000	5,614,000	7- 6-33 1.62
October	1,890,000	3,882,000	5,772,000	7-17-33 1.77
November	1,851,000	3,861,000	5,712,000	7-28-33 1 92
December	1,699,000	3,882,000	5,581,000	8-11-33 2 02
				8-30-33 2.17
				9- 6-33 2 27
				10- 4-33 2.37
1934—				
January	1,722,000	3,875,000	5,597,000	5- 1-34 $2.47
February	1,518,000	3,675,000	5,193,000	
March	1,502,000	3,738,000	5,240,000	

Administrator Ickes Explains Present Situation to Oil Men in Vigorous Address at Tulsa

By HAROLD L. ICKES
Secretary of the Interior and Oil Administrator*

Without laying any flattering unction to my soul, I can understand why you may have wanted me to come. To keep me out of mischief, President Roosevelt last July named me administrator of the oil code. It is perfectly natural that you should want to look me over and from the evidence of your own eyes and ears have some basis for estimating what manner of man the oil administrator is. And if you are glad of the opportunity to size me up, I also rejoice in this intimate contact with men who have helped to build up this great oil empire of the Southwest.

To paraphrase a line from one of the best known operas of Gilbert and Sullivan, "the oil administrator's lot is not a happy one." It is not a happy one in the sense that the problems connected with this administration are so important and so intricate that a great burden is necessarily thrown upon any man who would solve them fairly and justly. Yet, from another point of view, the oil administrator's lot is a happy one, because it has brought me into close personal contact with a group of as able and forceful men as exist anywhere in the United States today. I have found you to be a straight-shooting group. That is, most of you. It is unfortunately true that there are men in the oil industry who, in their greed and selfishness, would scuttle the ship. There are those who, if left to their primordial instincts, would again nail the pirate's flag to the masthead and sail the high seas of unrestricted and unrestrained exploitation in quest of loot to capture and victims to be made to walk the plank. But I am happy to say that the overwhelming majority of those whose lives and happiness depend upon the rational functioning of the oil industry are whole-heartedly behind the oil administration. We may have our differences of opinion as to policy, but those differences are honest differences and are usually amicably resolved by the application of a little patience, a little understanding, and a determination to arrive at a decision, which, while it may not give all he wants to everyone, will, on the average, appeal to the judgment of the great majority as fair and equitable.

Bushwhacking Tactics

This great industry will not now be seriously retarded in its progress toward an orderly and prosperous status by the bushwhacking tactics of a selfish and destructive, but fortunately inconsequential, minority. These obstructionists are well known and their motives understood. They do not represent any legitimate oil interest. They are purely selfish. They are the runners of "hot oil," and you know better than I what a "hot oil" gentleman is. He is the man who steals his neighbor's oil, surreptitiously sneaks it into a refinery which serves as the fence for such stolen goods, and then bootlegs it into the retail market. He not only steals his neighbor's oil, he steals his markets. These men constitute the crooked fringe that, unfortunately, we find in many a business and industry. In order to justify themselves, they pretend to believe, and try to make others believe, that they are fighting "the interests." They claim to be "independents," stealing an honored and respected designation under which to serve the devil. And in one sense they are "independents." They are independent of respect for law and order, independent of any sense of decency, independent of any proper scruple.

There are three foci of these gentry who would make Ali Baba look like a Sunday school pupil—one in California, one in East Texas and one in New York City. They have their outriders, their lookouts and their fences. Among most amusing and interesting experiences that have been mine since I went to Washington has been to listen to these eloquent and chest-pounding virtuosos as they proclaim their interest and concern for the oil industry and for the people of the United States. To be sure, they do this with their tongues in their cheeks, and yet at times they seem almost to persuade themselves that they are engaged in a legitimate enterprise and are entitled to sit side by side with reputable business men. Picture these men in your mind's eye, some of them dipping their pens into vitriol to attack the oil administration, others eloquently expounding the right of one man to drain a pool regardless of the rights of others who have an interest in that same pool, while in the murky background can indistinctly be discerned the figures of those actually engaged in the disreputable and discreditable enterprise that has come to be known as the "running of hot oil."

But I would move on to a more cheerful theme. We may be halted temporarily; we may be thwarted occasionally in our determination under the law to stop this stealing of oil, but it is as certain as I stand here today that in the end the right any man may have to share in the oil in a pool will be protected by the strong hand of the law. The governments of the oil states will co-operate with and be assisted by the Government of the United States, and all will have the active support of the overwhelming mass of those engaged in the oil business.

The oil industry, for almost a year now, has stood on a different basis. With the co-operation of the industry, we are working out problems that only a few years ago seemed insurmountable. Annoyed by the lawless tactics of a small, but ruthless, exploiting group, held back here and there temporarily by an unsympathetic and too narrow interpretation of the law, we are nevertheless moving steadily and inexorably, if slowly, toward a sane and reasonable solution of a problem that, until the coming into power of President Roosevelt's administration, seemed insoluble.

On other occasions I have painted with a broad brush the background of the oil industry in this country. I have told of its difficulties, of its unbelievable achievements. I have recounted its failures, told of its ruthlessness, recounted its high crimes and misdemeanors. I shall not discuss any of these matters today. You know better than I, from your own personal experience, what the oil business has been.

For the benefit of certain caustic and not too scrupulous critics I will say on this occasion that when, under the orders of President Roosevelt, I called together and faced in Washington in the latter part of March, 1933, a conference composed of the representatives of the oil industry in the United States, I knew little, if anything, about oil. But even a Secretary of the Interior can learn something in a year's time if he devotes to the subject whatever mind he may have. And while I am still not prepared to say that I know very much about the subject, as I face this audience today I will with due modesty assert that I know a great deal more about it than I did a year ago. And if the President shall continue to entrust the administration of this important industry to me, I assure you that I shall try to learn more about your business and your methods of conducting it as time goes on.

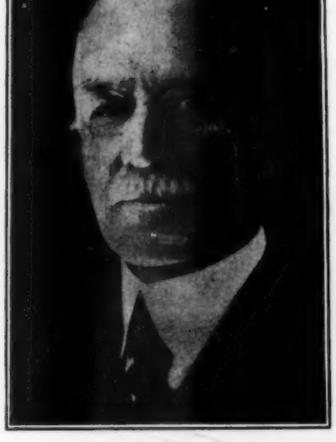
No Breath of Suspicion

Approaching the responsible task entrusted to me by President Roosevelt when he named me oil administrator, my first duty was to surround myself with men who had no selfish or ulterior purpose to serve. I believe it will be generally admitted that I have succeeded so in surrounding myself. If there has been any breath of suspicion in connection with any member of the staff of the oil administrator, it has not reached my ears. One of the criticisms made by some of the political writers of Washington is that the Secretary of the Interior is too suspicious. I do try to exercise reasonable care. I have wanted men about me in this oil administration who are honest, but who also have other qualities. An honest man may be the veriest kind of a fool. It is axiomatic that an honest, but stupid, man will often do things that a clever crook would not dare to do. In addition to integrity of character and impeccability of conduct, I have wanted

*At International Petroleum Exposition, I.P.A.A. annual meeting, Tulsa, May 17.

Collett Re-elected and Mapes Is Chosen to Succeed the Late Harry H. Smith

J. D. Collett, of Fort Worth, Tex., was re-elected president of the general Mid-Continent Oil and Gas Association at the annual meeting of that body held in Tulsa on Wednesday, May 16, and Clarel B. Mapes, who has been acting as



J. D. COLLETT

secretary and treasurer since the death of Harry H. Smith, was elected to the dual position.

Other officers elected were George S. Rollin, of the Shell Petroleum Corp., Tulsa, vice president for Oklahoma; W. H. Francis, of the Magnolia Petroleum Co., Dallas, vice president for Texas; D. W. Harris, of the Arkansas Natural Gas Corp., Shreveport, vice president for Louisiana and Arkansas; Ralph Pryor, of Slick, Pryor & Lockhart, Inc., Wichita, vice president for Kansas, and Van S. Welch, of Flynn, Welch & Yates, Artesia, N. Mex., vice president for New Mexico.

The members of the general board of directors were re-elected, but the state associations will be called upon later in the year to select successors to the late John H. Markham, Harry H. Smith, and Kendall Winship, of Tulsa, and J. H. Clark and Levi Smith, of Texas, all of whom passed away within the past year.

The re-election of Mr. Collett as president and the election of Mr. Mapes as secretary and treasurer was a fine tribute to two officials who have worked hard in the many fields of usefulness covered by associational activities, the benefits of which not only accrue to the membership of the association but to the oil industry generally.

The sixteenth annual banquet of the association was held in the evening in the Hotel Mayo and was attended by

CLAREL B. MAPES

over 500 oil men from every part of the United States where oil is produced.

Short addresses were made by U. S. Senator Thomas P. Gore of Oklahoma; Baird H. Markham, director of the American Petroleum Industries Committee; Warren C. Platt of Cleveland, Ohio, and Dr. John L. Davis of New York.

President Collett paid a high tribute to Senator Gore for his loyalty to the oil industry and his valuable services in the matter of national legislation affecting the industry, and the senator responded with a witty address in which he gave his hearers a line on the oil situation from the Washington angle.

Mr. Markham's address was devoted to the burden of taxes under which the oil industry is struggling.

men, fortunately, I have been able to find and to induce to enter the service men of ability and of courage, and such of the Government. The lawyers, the technicians and the experts of various sorts on the staff of the oil administrator are. I am convinced, as honest and intelligent, as hard working, and as hard hitting a group of men as have ever served the Government. The oil administration has only one interest, and that is honestly and intelligently to help the industry to solve its problems and put itself upon a sure and firm foundation for all time to come.

The oil administrator has not been compelled to impose decisions although he reserves the right under the law to do so if in his considered judgment the welfare of the industry and of the country demand it. It has been unnecessary for him to attempt to drive an unwilling industry because he has had the co-operation and assistance of leaders of the industry whose object has been, in common with his, to solve questions in the common interest. These oil men may in the past have been the ruthless, exploiting, domineering, acquisitive individuals that we have been brought up to believe they were, but so far as I am concerned, bygones are bygones, and so long as the spirit of sweet reasonableness pervades their councils, we will be able to continue to work together harmoniously and in good spirit.

Setting Up Code Machinery

While, as time goes, it was only yesterday that the oil administration was set up in Washington, we have already traveled a long road. As late as March of 1933, there were what appeared to be irreconcilable interests in the oil industry clashing with each other, suspicious to a degree, pulling and hauling for some putative advantage. This spirit of rivalry and distrust was not abated in any degree during the hearings that led up to the drafting of the oil code. Each group felt that the other was trying to gain some undue advantage. Then came the setting up of the machinery for administration under the code. Still it was observed that when adherents of rival groups met on the streets, their hands went instinctively to their pistol pockets. How was the Planning and Coordination Committee, that new parliament of the oil industry set up to work in co-operation with the oil administrator, to be constituted? There were heartburnings over this question. Different individuals and groups visited the oil administrator and caused representations to be made to the President respecting the personnel who should compose this committee. Recognizing the dangers of the situation, although admitting the validity of various clashing claims put forward in behalf of various individuals, the administration in the end decided to select what seemed to be a representative cross section of the industry.

May I say that while this decision deprived some of the outstanding oil interests of the country of that representation on the Planning and Coordination Committee to which they believed they were entitled, these interests accepted the decision gracefully and as true sportsmen. They may not have liked the setup of the committee which must have seemed to them not to include, on a basis of proportionate strength, great and far-reaching interests that were entitled to representation. It may also be said that, if there was some basis for the claim that the outstanding oil interests were not adequately represented on this committee, the small interests also needed greater representation. Yet all went along in a spirit of fine and helpful co-operation. No one of them sulked in his tent. No single individual at any time when called upon for advice or help by the administrator refused to respond. It all went to show that the reputed indisposition of antagonistic interests to work together was more imaginary than real.

Will Function Harmoniously

After careful consideration the oil administrator finally concluded that those interests in the industry which were not represented adequately on the Planning and Coordination Committee should have a more just and fair representation. Accordingly, after various conferences, by common agreement, the number of the Planning and Coordination Committee was increased from 12 to 23, exclusive of the three representatives of the Government. Such additional members have been named by the President so that, while the balance of the committee has not been disturbed, the representation of the larger as well as of the smaller units in the industry is more justly proportionate. My prediction is that with the abatement of mutual suspicion that has already resulted and with such an actual demonstration as we have had to date of ability to work together in the common cause, the enlarged Planning and Coordination Committee will be able to function harmoniously in the interest of all.

I am aware that there are those in the country who charge the oil administrator with favoring the big interests and with helping to build up and fortify monopolistic practices. The most vociferous criticism along these lines comes, of course, from the "hot oil" thieves, their sutlers and nondescript hangers-on. With such dishonest criticism I am not concerned. But there is another group of critics whose strictures, even if mistaken, are honestly conceived and given voice to in what is supposed to be the public interest. Criticism of this sort I welcome. I would be the last to claim infallibility of judgment, but I do say that if by any act of mine I have done, or failed to do, anything that would have the result of fostering monopolistic practices in the oil industry, that act or failure to act on my part has been unwitting. I will welcome at any time the presentation of facts that would go to prove that, either knowingly or innocently, as oil administrator, I have helped to tear down the weak at the expense of the strong.

Cannot Unscramble Eggs

Even if I should find in this oil administration a heaven-sent opportunity to unscramble the eggs—a feat that even the Supreme Court of the United States was not successful in doing; to break up the great units in the oil industry into their original component parts; to put upon their heads whatever weight might be sufficient to prevent them from growing any more; to divorce pipe lines from productive wells; to separate refineries from pipe lines, and to forbid ownership by refineries of service stations, I would have no authority for doing so under the law. After all, I was not empowered by President Roosevelt to impose my unrestrained judgment upon the oil industry. The President could not have delegated such absolute powers to me even if he wished to do so. He could not pass on to me powers which he himself did not possess. His powers, and therefore mine, are strictly limited by the act of Congress, and the code set up pursuant thereto, under which the oil administration is operating.

Even if it would assure the return of that prosperity in our country that we so eagerly wish for, I would not know how to go about administering this code so that the small producers, the independent refineries, the individual royalty and fee owners, and the many jobbers and dealers in the industry could each make a profit out of his interest without permitting the giants in the industry also to make a profit. The big, integrated companies, because of their far-flung interests, touching every phase of the oil business, and on account of their hitherto impregnable capital structure, have been able to make money in situations and at times when those less fortunately circumstanced were compelled to operate at a loss. That is an unfortunate situation which it is the endeavor of the oil administration, if possible, to remedy in the present and to prevent in the future. But if anyone can tell me how the oil business can be run so that the little fellow can make a profit while the big fellow is operating at a loss, or at least without a profit, I would like to be told just as a matter of interest.

Reasonable Profit Basis

I am only a creature of the law. I cannot exceed my authority. I am charged by law with the responsibility of co-operating with the oil interests to the end that those interests may be put upon a reasonable profit basis and contribute their share toward the economic recovery of the country. If this end is to be achieved, we must do all that lies within our power to put every phase of the oil industry upon a reasonable profit basis. If I cannot say to a small company, "You and similar companies alone may make a profit," neither can I say to one of the big, integrated companies, "Share your capital with those who need capital, use your refineries to manufacture gasoline from the crude oil of your rivals, divest yourself of control of your pipe lines in favor of those who have no pipe lines, permit gasoline of others to displace yours at your service stations."

As we acquire a better understanding of the social and economic implications of the oil business, it may be necessary to do some of the things, either in absolute or in modified form, that I have just recited. But there will have to be statutory authority before the oil administrator, or even the President himself, may grant privileges to one class in the oil business at the expense of another, or take away property and accrued rights from one group and give them to another.

I need not recall to you the chaotic

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Many Gas Pipe Lines Being Constructed in East Texas for Gasoline Plants

By L. E. BREDBERG

The principal pipe line construction in the East Texas Field now is that of laying several hundred miles of gas line to connect the newly constructed and casinghead gasoline plants under construction.

In order to obtain a sufficient gas supply for the compression and absorption gasoline plants in the field, the companies have to connect with several hundred wells, one company connecting to over 1,000 wells to fortify the plant with a sufficient gas supply. The some 13,200 producing wells in the field have a low gas-oil ratio.

Pipe liners laying these gas lines, which vary in size all the way from 2 to 20-inch, run into many obstacles, having to deal with different kinds of terrain, from sand hills to swamps. Road and railroad crossings have to be tunnelled, and the many creek and river beds traversing the field afford considerable difficulty.

Grasshopper used in lining pipe for welding

The majority of the gasoline companies are now laying return lines to carry the residue gas back to the leases for repressuring work when this artificial means of lifting the oil is necessary in the field, consequently the cost and work of laying lines is nearly doubled although the return lines are generally smaller pipe, mostly 2-inch.

Gasoline plants are now located in nearly every part of the field, from the northern part of Gregg County to the southern part of Rusk where dry gas is being produced from several wells. The gas from the main part of the field processes out around 2.5 gallons of gasoline per 1,000 feet of gas. One more gasoline plant is now proposed for the southern part of the field. The T. W. Murray Oil & Gas Co. is to move a 30,000,000-foot plant from Louisiana to its W. H. Arnold lease in the Levi Sparks Survey in southern Rusk County. This plant will be erected principally to process dry gas produced in the company's one well on the lease. The well has an estimated daily potential of between 40,000,000 and 50,000,000 feet. Other dry gassers in the area also have high potentials with some of the gas being shut in while some is used for drilling wells in the southern part of the field.

Hanlon-Buchanan, Inc., is erecting a 12-unit plant on the Humble Oil & Refining Co.'s Bowles lease northeast of Gladewater in Gregg County. The plant will be connected to around 1,000 wells by about 85 miles of various size pipe. It will be in operation between June 1 and 10. The greater part of the equipment is being moved from Breckenridge where the company formerly had large gas holdings and did a large casinghead business, but a new Fluor Redwood cooling tower is being erected to serve the plant, which will be one of the largest in the field.

H. J. De Latin is superintendent of the pipe line department of the Hanlon-Buchanan, Inc., and in charge of the pipe line construction work in the field for his company. Nature's forces set up a strong fight in that area against the pipe liner and nothing but treaded tractors can negotiate many places in the swamps.

One piece of equipment devised to help overcome the deep sandy stretches and muddy swamps was made of old Ford running gears and wheels. The pneumatic tires on this chassis, which was rigged up to carry the generators and motors for supplying welding current, helped a whole lot in traversing many stretches where narrow tires or smaller wheels would have sunk into the sand and mud.

Another helpful device was used on placing the pipe ends together for tack welding. This device, made out of waste rod from one-half to 1 inch in thickness, is known as the "grasshopper" and is operated by one man, various sized grasshoppers being used for different size pipe. The device can be seen in the picture where a welder is tacking two joints of pipe together while the man operating the grasshopper holds the joints in place. One end of the grasshopper slips under the opposite joint of pipe forming sort of cradle while another part of the grasshopper is braced over the top of the joint over which he is standing to guide the two joints together. By pressing down or easing up on the handle, which is from 4 to 6 feet in length he can raise or lower the opposite pipe end to exactly coincide with the joint near him thereby placing the ends just right for tacking. Any size pipe up to 20 inches can be handled with different size grasshoppers, and welding is speeded up and facilitated with this ingenious but cheap device. When aligning heavier pipe a tractor has to be used in butting up one joint to the other, the grasshopper being used to guide the pipe as it is pushed up to another joint.

Deep Sand Oil Possibilities on Cincinnati Arch Traversing Kentucky From North to South

By WM. CLEMENT LEONARD
Research Director, Hydrocarbon Research, Inc.

In discussing the deep sand oil possibilities on the Cincinnati Arch in Kentucky, it is very necessary to first consider the general geology of the state in a brief manner and those interested in such matters will find its areal and structural geology very interesting because there is such a variety of rock exposed and so many old formations have been brought to the surface in such a small area. As an illustration of this, there is a small dome near the Cub Creek fault at the mouth of Forbush Creek on the Cumberland River, in Wayne County, near the junction of Wayne, Pulaski and Russell Counties, where the Ordovician rock covers an area about 2 miles square on top of the dome which is surrounded by successive exposures of Silurian, Devonian and Mississippian. Within a mile to the south, all of these are found on the surface and, in addition to this, the high peaks of the hills there also display thin beds of coal of Pennsylvanian age; thus exposures of five of these old formations can be seen within that mile. This series of exposures is so phenomenal that the University of Michigan geological class camped nearby at Mill Springs for many years, and may still do so, in order to do their summer field work where fossils of all of these five old series could be found in such a small area; for there are many millions of years difference in their ages.

Geographically, Kentucky may be described as being divided into three distinct sections. First the Blue Grass region, occupying the central and especially the north central part of the state; second, the mountainous coal measures, occupying the eastern part of the state, and third, the similar mountainous coal basin occupying the western part of the state.

Geologically it can also be divided into three distinct sections of which the first is the top of the Cincinnati Arch on which the Blue Grass region lies and the second and third are those regions to the east and west of the arch which are the great synclinoriums or basins on each side of the arch.

Geological Terms

For the purpose of making sure that laymen, or oil operators, understand the terms which will be used, it will be said that the term "arch" is used to express an uplift of the rocks in the crust of the earth, or an anticline, and an "anticline" might be described as a long, uplifted section of the formations in the crust of the earth. A "syncline" is the depression on the side of an anticline, while a "dome" is a more circular uplifted portion of the rock structure of the earth. Students of geology and philosophers have realized that the conditions that cause anticlines do not often create domes at the first uplifting or application of stress. On the other hand, the "dome" is usually formed when a second uplifting or application of stress occurs which has its strike at right angles, or nearly so, to the first uplifting. This second uplifting may only form an anticline or a fault over the area where no previous uplifting had taken place, even off to the sides of an anticline, but when the second uplifting crosses a previously uplifted anticline which has already been strained to its utmost, both a dome and faulting is the usual result. If the strain is but little a dome may be formed without any accompanying faulting. There are many domes, however, which show no signs of faulting but which deep wells have proven do have deep faults connected with them. Of course the dome occurs or is formed at the intersection of the two uplifts. This is well illustrated at the Jessamine Dome on the Cincinnati Arch in Kentucky where there is evidence of several different upliftings which each had a slightly different strike but the east-west one probably was of the greatest moment and will be later referred to.

A "geoanticline" is an anticline or great upward flexure of the crust of the earth of much greater proportions than those of a mere anticline while a "geosyncline" describes the broad basins on either side of a geoanticline such as those found in eastern and western Kentucky. The sides of the arch descending into these basins are called "monoclines," since they are single inclines. As an illustration of the two great geosynclines in Kentucky it might be said that from the axis of the major arch to the axis of the synclinal basins the one on the west extends from near Nicholasville in Jessamine County to a point located about McLean County, a distance of approximately 150 miles, while the one on the east extends from Nicholasville to the state boundary of West Virginia in Pike County, also a distance of about 150 miles. On the west of Nicholasville the monoclinal normal dip is west at an average of from 20 to 25 feet to the mile and from Nicholasville it is east at an average of 75 feet to the mile although these steep dips do not really commence at Nicholasville but at the point where the Ordovician submerges itself below the younger formations. This will probably give the layman a better idea of the conditions that will now be more fully described.

Cincinnati Arch

The Cincinnati Arch is the local name of a massive continental uplift that can be traced from Canada, past Chicago, through Illinois, Indiana, Ohio, Kentucky, Tennessee, Alabama to the northeast corner of Mississippi by the older rock such as the Devonian, Silurian and Ordovician which have been brought to the surface from beneath the younger formations along its axis. It is thought by some to have been a mountain range in the early days which was later partly submerged for today it can easily be traced for a distance of over a thousand miles. At one time it was thought to extend from about Columbus, Ohio, to Toledo as there is a fork in its northern trend in Ohio that extends toward Toledo, but the consensus of opinion seems to prefer the first named route as its main axis and to consider the Toledo branch as but a spur.

Jessamine Dome

The Cincinnati Arch traverses Kentucky from north to south with Cincinnati located at about the center as it enters the state on the north and Cumberland County at its center on the south. On the north it is quite broad but not so broad on the south. There is distinct evidence that indicates that several other disturbances have occurred in the area occupied by the Cincinnati Arch in Kentucky which have had an axis at different angles from that of the major arch. Some of the larger of these have had a north-east and others an east-west direction. The great Jessamine Dome in Jessamine County is probably due to the crossing of the major arch by these disturbances and especially to the crossing of another one of major proportions which can be traced across Kentucky to West Virginia and then, as the Chestnut Ridge anticline, into Pennsylvania; for along this disturbance in eastern Kentucky is found the lengthy and extensive Irvine fault, discovered by Dr. A. M. Miller, and the Paint Lick uplift and dome while across the arch, and connected with this cross disturbance is found the great Kentucky River fault, the Jessamine Dome and other evidences to the west. It is quite probable that these later disturbances caused uplifting or stress in different directions from that of the major arch and left the faults and domes as monuments of the events. Over the top of the Jessamine Dome on top of the Cincinnati Arch the old Mohawkian of lower Ordovician age has been brought to the surface with its highest point near Nicholasville in Jessamine County, hence its name. This large area with Mohawkian as the present surface rock is surrounded by a much larger area on top of the major arch which has the upper Ordovician, or Cincinnatian, as the surface rock. This Ordovician covered section on the arch is approximately 90 miles square in Kentucky with the dome in Jessamine County about 30 miles from its southern boundary. On the north the same upper Ordovician area extends north into Indiana and Ohio along the top of the arch. It is the old Ordovician rocks on the surface in Kentucky that furnish the rich lime base of the soils in that region known as the "Blue Grass region of Kentucky."

Meshack Uplift

Another such east-west disturbance which crossed the main axis of the Cincinnati Arch is found in Cumberland, Clinton and Monroe Counties and has been designated as the Meshack uplift. It has been traced for about 30 miles and along its axis are found several small domes and faults. It was on or near these that the oil production of earlier days was found. It is probable that this was of greater length than has been mapped and it closely coincides with several cross folds found on the large Ordovician covered area in Tennessee and principally the Nashville Dome.

In traveling either east or west from the top of the Jessamine Dome younger and still younger formations are met on the sides of the great arch and it might be said that they usually thicken as they leave the arch and thin as they approach it. To illustrate this, at the western part

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Tankers Being Used for Crude Storage in the Maritime Fields in Louisiana

By NEIL WILLIAMS

HOUSTON, Tex., May 21.—A use for three old tankers, whose seaworthy days were about over, has been found by the Texas Co. in its maritime fields along the coast of Terrebonne Parish, Louisiana. Instead of being relegated to the scrap heap, these boats, like old fire horses put out on pasture for their remaining days, have been stationed permanently in these fields for storage of oil production.

One of these boats, the Louisiana, providing storage for 30,000 bbls., is in the Lake Barre Field; another, the Tampico, with capacity of 18,000 bbls., is at Caillou Island Field; while the third, the West Lake, with capacity of 74,000 bbls., is in what is known as Cat Island Pass, one of the outlets of Terrebonne Bay into the Gulf of Mexico. Each of these boats has facilities for a greater amount of oil, but due to the comparatively shallow water they cannot be loaded to capacity.

Although the water is shallow, ranging from 6 feet at Lake Barre to around 15 feet where the West Lake is stationed, the boats were brought in without difficulty. With all ballast pumped out they were towed to position, but in their respective permanent berths, moored to piling, they are resting on bottom of the lake and the bay.

All three of the boats have been left intact, including all the machinery and other facilities. The radio transmitting and receiving equipment on each forms a part of the company's short wave communication system between the various fields and the bases of the operations for this group of fields. The engines and pumps have been hooked up for loading and unloading the oil, and generators supply power for lights and other needs. The boats also furnish quarters for some of the men. Every part is being kept up in as good condition as possible, and if

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The Texas Co.'s "Tampico", former tanker-barge, which has been converted into permanent storage at Caillou Island, one of the company's maritime fields off the coast of Terrebonne Parish, La.

Deep Sand Development in the Eastern Area Needed to Create Adequate Gas Reserves

By F. E. ECKERT
Petroleum Engineer, Hanley & Bird, Bradford, Pa.*

Except for an occasional well drilled in different states there was no deep sand development in the East until the fall of 1930. There are today but 12 gas producers in the East below 6,000 feet deep. Production in the East below a depth of 4,000 feet is confined to the Tioga-Potter County gas fields. All drilling is done by the standard cable tool method. It is thought rotary equipment can be used advantageously in the East for wells drilled below the Oriskany sand.

At present most all deep sand wells in the Tioga-Potter County fields produce through 7-inch O.D. seamless casing which is cemented 200 feet or so up from the bottom. Several cementing methods are in use.

The operators in this deep sand field (wells 4,000 to 6,400 feet deep) use various methods of control for producing wells, including heaters, restriction orifices, regulators and alcohol bottle.

A few of the wells down structure are making salt water and practically all producers produce fresh water, which is handled by drips and siphons.

Average rock pressures have declined approximately one-half in the Tioga Field. Several large pipe lines have been constructed which are delivering gas principally for industrial use.

Deep sand drilling in the East is in its infancy. Incidentally, the deepest well in the world drilled with cable tools is located in West Virginia. This well was drilled to a depth of 9,104 feet by the United Fuel Gas Co. It encountered salt water in the Medina sand at a depth of 7,119 feet.

Tioga-Potter County Fields

These are the two deep sand fields of Pennsylvania where gas is produced from the Oriskany sand. The discovery well was drilled in Tioga County during September, 1930. The Tioga Field is now about 10 miles long and three-quarters of a mile wide and has 42 producing gas wells. These wells had an initial daily open flow of 640,000,000 feet. The wells average 4,000 feet in depth and initial rock pressure was 1,740 pounds per square inch. The gas is free from sulphur, has a specific gravity of 0.58 and a B.t.u. content of 1,030. The sand has a porosity ranging from 4 to 11 per cent. Thickness of sand varies from 35 to 60 feet. Gas is being delivered from the field by three large companies to Syracuse, Williamsport and nearby cities in New York and Pennsylvania.

Immediately after this field was discovered leasers appeared from all over the country and soon about 4,000,000 acres of land were under lease in Pennsylvania and southern New York state. After a short time of offering regular leases competition was keen and large bonuses were paid, the customary 25-cent and 50-cent land rentals for wildcat acreage being jumped to $1 to $3 per acre. The peak bonus is reported at $500 per acre. Undoubtedly the reason for this uneconomical process was the fact that the geology of the field was not known and the Easterners, not being accustomed to drilling salt water sands, presumed the productive area would broaden out like the old Pennsylvania gas fields. Instead of this the field turned out to be but one mile in width, all producers being found on the crest of the anticline and all the wells down the dip finding salt water or tight sands.

The discovery well in the Potter County Field was drilled during December, 1931. This field is now 2½ miles long, 1 mile wide and has 16 producing gas wells. There is also one large gas well 5 miles northeast of the field. The total initial daily open flow was 250,000,000 feet. The depth of these wells ranges from 5,000 to 5,700 feet except in the southern end of the county where one small well produces from the Oriskany at a depth of 6,300 feet. There are now four pipe lines taking gas from the field and another line under construction. The field is connected by two pipe lines to the Tioga Field 40 miles to the east.

Drilling Methods

Every well in the East has been drilled by the standard cable tool method, otherwise known as the percussion method. Some changes are of course necessary in both equipment and drilling practice for the deep holes. The derrick used in the Potter County, Pennsylvania, Field (wells 5,000 to 6,400 feet deep) is generally an 80-foot angleiron derrick with a 20-foot base, having a safe load of 330,000 pounds A.P.I. rating. Due to the heavy strings of casing and extensive "Christmas trees" all wells have a concrete walled cellar about 8x8x8 feet deep. Most contractors use a chain-driven sand reel, a chain driven calf wheel and 8-foot double or triple tug steel bull wheels with two brake wheels. Power is furnished with 125 to 150-horsepower engines or steam with 50 to 65-horsepower boilers. Both 11-foot and 14-foot band wheels are used with a 14-inch belt.

After spudding in most contractors begin drilling with a ⅞-inch, 4,000-foot-long mild plow steel drilling line of 6x7 or 6x19 construction, using a 2¼-inch, 300-foot-long manila cracker. At 4,000 feet a 1-inch by 6,500-foot 6x19 mild plow wire line is put on. Some contractors vary this, using a cracker all the time. Others a swivel socket and some a stiff socket. A joint or two of 14-inch or 16-inch pipe is first set and fresh water is generally shut off with 10-inch casing at a depth of from 500 to 750 feet. A 9-inch open hole is then drilled to the Onondaga limestone which is 30 feet above the Oriskany or pay sand. Here the 7-inch O.D. casing is set in cement. At present most operators are setting 30-pound grade D seamless casing. No pipe is floated into the holes because of the cavey nature of the shales just above and below the Tully limestone. After drilling has been resumed in the 7-inch casing it takes from a few hours to two days to drill the well in due to the hard cap rock. As all operators use a drilling gate valve there has never been any trouble shutting the wells in. The initial open flows range from 5,000,000 to 75,000,000 feet per day and initial rock pressure is about 2,200 pounds per square inch.

From the preceding paragraph it might appear that the deep sand drilling is very simple. However, that description is only for the holes where "all is well." Many difficulties are encountered and it is those troubles together with the expensive producing string of casing that accounts for the high cost of the wells, average $22,000. Some of the main difficulties are enumerated below.

The topography of the country is quite rugged in places, causing large expense in moving the heavy equipment.

Below 2,000 feet the formation is practically all shale and at two particular places, that is above the Tully limestone and above the Onondaga limestone, these shales often cave considerably. Several of the operators fight these caves by using "Aqua-gel," a drilling mud imported from California. Other operators cement caves several times before reaching the pay sand. After reaching the first cave all water is dumped with the bailer.

Faults are encountered in both these fields and near the faults the beds have a steep dip, making it quite difficult to drill a straight hole. These holes are really slant holes and from tests made by recording instrument the degree of dip gradually increases with depth. Keeping the tools tight while drilling does not seem to keep the hole straight. In one slant hole in particular several attempts were made to straighten it by filling back with cement, limestone and steel cuttings and later by using whipstocks but it was impossible to drill the hole vertical. It is my opinion that it was the nature of the formations in this fault rather than the slant in the hole that caused the trouble. This hole found the Tully limestone 350 feet lower than its offset well located just 700 feet away.

Rotary-Cable Tool Comparison

The question often arises as to why the eastern operators do not employ the rotary method in their drilling. While the eastern operators feel that due to the hard formations, the lack of cavey holes and the short strings of pipe, they do not need rotary tools, yet the answer cannot be given as to which is the more economical method until both have been tried, especially since roller or rock bits have now been designed so that it is possible to drill rock and other hard formation by the rotary method. One hundred feet a day is the average amount of hole drilled in the east by the cable tool method when drilling is at its best, but when caving occurs there are many days when no new hole is drilled. In many of the western fields holes cannot be drilled by the cable tool method due to the soft formations. These formations belong to recent geologic ages. On the contrary the eastern formations are all hard and the hole "stands up," there being no need for mud-laden fluid. Exceptions to these are the caves just above the Tully and Onondaga limestones.

The eastern formations are all of Pennsylvanian and older geologic ages. No craters have developed at any eastern wells. Another great advantage of the rotary method is that drilling can be done with smaller holes than with the cable tool method, thus causing a great saving in time and casing. This problem does not bother the operators in the East for the holes are all drilled open after shutting off fresh water at from 400 to 1,500 feet. Of course, there is the producing string to the bottom of the hole but this string is necessary with either

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*Before A.P.I. meeting, Pittsburgh, Pa., May 23.
Author's title, "Deep Sand Development in the Eastern Area."

Refining Is Declared to Have Suffered Severely Under Code Operation

By PAUL G. BLAZER
President, Ashland Refining Co., Ashland, Ky.*

Up to this time the refining branch, from the standpoint of profits, has suffered severely under the operation of the code. With shorter hours than the marketing branch, and fewer exemptions than given to production, the labor provisions have proved burdensome to the refineries. This is especially true in the smaller plants, which require more men per thousand barrels of crude oil processed than in the larger plants refining oil for the same finished products.

It has been conceded generally that the original refining section of the code was weak. Furthermore, its weakness has been aggravated by the fact that some of its most important provisions have never been operative. Under the proposed ratio of 18.5 to 1 between $1 crude and the price of gasoline, the price of the latter should be $.054, but the average price for the first four months of the year was $.046. If the price of crude had been governed by gasoline prices, as originally intended, the market for 36 gravity crude oil would have been only $.85 per barrel. In spite of the fact the refiners have been obliged to absorb this discrepancy of $.15 per barrel, I am sure that the industry, as a whole, has benefited by the stabilized crude oil market.

The demoralized tank car market for gasoline has resulted principally from low-priced competition of material produced in East Texas from "hot oil," but the fact that occasionally large sales have been made at similar prices by major companies not obliged by financial considerations to dump distress gasoline at sacrifice prices suggests that certain important interests have not been trying to relieve the plight of the independent refiners who have been forced to dispose of their products at a loss on the open market.

At this point it might be well to discuss some of the reasons for increased gasoline business of certain major companies and loss of business by independents.

Place of Independents

For many years the independent jobbers, especially in the Middle West, were the distributors, almost exclusively, for the independent refiners. Major companies sold their gasoline through their own bulk plants and competed with the independent jobbers who purchased their supplies either on the open market or on contract from independent refiners.

Within the last few years many of the larger companies that previously marketed their products only in a few states expanded their operations into new territory. The easiest way for them to obtain quickly a large volume of business in new territory was either to buy out established jobbers, or appoint them their distributors. Many jobbers who had no desire to retire from business received such flattering offers they could not re-

(Continued on Page 45)

*Before I.P.A.A., Tulsa, May 17.

Effect of Chemical Treatment of Well Fluid on Tubing Corrosion; Tests Made on Gulf Coast

By WALTER F. ROGERS
Gulf Oil Companies, Houston, Tex.*

The corrosion attack of oil well subsurface equipment by oil well brines often entails monetary losses of large magnitude. This has been particularly true in certain Gulf Coast fields where the fluid corrosion attack is sometimes so severe as to be the predominating factor in governing the life of the wells. In these cases corrosion attack of the well casing and liner allows the unconsolidated sandy producing horizon to enter the well and stop further production until the well has been reworked. Since there is usually a limit to the number of times this may be done, it has happened in numerous instances that the final abandonment of coastal oil wells has been largely due to the result of corrosion rather than to a depletion of oil in the producing formation.

Aside from the Gulf Coast wells which have been notorious in regard to their corrosion attack, the problem is encountered in the majority of oil fields sooner or later in their life.

The cost of handling corrosive oil field brines has stimulated interest in the development of corrosion-resistant equipment to reduce the troubles that are encountered. To a certain extent these efforts have been rewarded in regard to some of the smaller items of well equipment. The recent developments along this line of stainless steel and nonferrous materials for ball and seat manufacture, stainless steel lined working barrels, monel metal and stainless steel polished rods, are all notable developments. These, however, still leave untouched the large mass of metal necessary for the well in the form of casing, strainer and tubing.

Aside from attempts to reduce production corrosion losses through the development of more resistant materials of construction, studies have also included methods for handling or treating the fluid to control and eliminate or reduce its rate of attack. Efforts along this line have been handicapped by a failure to understand the governing factors which cause and control the rate of attack of well brines on the subsurface equipment. If, for instance, it were a proved fact that the presence of acid in the well brines was responsible for the trouble which occurs, then steps could be taken to remove the acid from the fluids. Unfortunately, the cause of the corrosion attack of oil field subsurface equipment is not so simple. As yet no single factor or combination of factors has been found to be primarily responsible for the trouble which occurs. Attempts have been made to correlate such factors of the brine as total salt content, components of the salt content, acidity, etc. Undoubtedly all these factors and others contribute to some extent, but the exact evaluation has not been accomplished.

Alkaline Treatments to Stop Corrosion

During the past several years some experiments have been made with the use of alkaline treatments of the sodium-hydroxide or sodium-carbonate type to reduce the corrosion losses which were being obtained. These experiments were primarily conducted on wells which produced brine and oil carrying dissolved hydrogen-sulphide gas. The treatments were made by daily lubricating the required amount of the treating solution down the casinghead of the well to the fluid being produced. Details as to the exact composition and concentration of chemicals used were not given, but it was reported that a reduction in corrosion losses had been obtained.

The possible value of such a treatment, if successful, is so large that field experiments of a similar nature were in order. Before starting the field experiments, however, it was necessary to review in some detail the effect of alkaline solutions on well brines in order to anticipate or explain the results obtained from the field experiments.

TABLE 1—TUBING DATA AND FLUID PRODUCTION OF TEST WELLS

Well	Field—	Amount of 2⅛-in. tubing (feet)	Age of tubing at start of treatment (days)	Density of tubing failures at start of treatment (days per failure)	Daily water (bbls.)	Daily oil (bbls.)
A	Goose Creek (Texas)	3,100	3,624	59.4	16	16
B	Goose Creek (Texas)	3,300	911	40.1	45	30
C	Goose Creek (Texas)	3,500	364	16.4	650	30
D	Smackover (Arkansas) ..	2,300	1,337	82 8	700	12
E	Smackover (Arkansas) ..	2,300	1,034	29.2	950	30

Neutralization of Hydrogen Sulphide

The action of alkaline solutions on a well brine which carries hydrogen sulphide and, in addition, magnesium and calcium salts will occur in several stages —depending upon the concentration of the salts and the amount of alkali used.

If sodium-hydroxide solution is added to the brine, the first effect will be the partial neutralization of the hydrogen sulphide. Due, however, to local over-concentrations of caustic in the well brine through lack of agitation of the fluid in the annulus between the tubing and the casing, some magnesium hydroxide will precipitate. If sodium-carbonate solution is used, the first effect will again be the partial neutralization of hydrogen sulphide; but again due to localization of the alkaline solution, an additional reaction takes place. This is the precipitation of calcium carbonate.

In order to obtain complete neutralization of the hydrogen sulphide, more than the theoretical quantity of either sodium hydroxide or sodium carbonate will be necessary. The excess alkaline solution will precipitate calcium carbonate or magnesium hydroxide.

It is questionable whether the neutralization of hydrogen sulphide will materially reduce the corrosion attack experienced. This is true, since it is known that the presence of hydrogen-sulphide gas in well brines does not always result in corrosion of the subsurface equipment. The Gulf Coast cap rock field of Batson (Texas) and the Balcones Fault Line Field of Bruner, Luling (Texas) both produce fluid carrying large quantities of hydrogen sulphide. The Bruner Field especially produces at a high water-oil ratio. In these two fields there is very little corrosion of the steel or iron subsurface equipment.

It is also well known that the addition of slight quantities of air to fluid carrying hydrogen sulphide results in a very rapid corrosion rate. This is shown by the universal destruction of surface equipment of lease tanks, waste water disposal lines, etc., in all fields producing hydrogen-sulphide bearing fluid. It is possible that subsurface corrosion experienced by the handling of hydrogen-sulphide bearing brines is an abnormal condition induced through the inclusion of air either through absorption of air present in the annulus between the tubing and the casing, or through the leakage of oxygen bearing waters into the well fluid. Where the corrosion is due to the presence of oxygen from these or other sources, complete neutralization of the hydrogen sulphide might result in a decrease, but not complete abolition, of corrosion attack.

Precipitation of Calcium and Magnesium Salts

The question now arises as to the value of alkaline solutions after the hydrogen sulphide has been neutralized or when used with well brines free from hydrogen sulphide. In this case, the treatment with sodium-hydroxide or sodium-carbonate solution results in a precipitation of either magnesium hydroxide or calcium carbonate. The precipitation occurs in the tubing-casing annulus — a restricted area, and one in which there is probably little velocity of fluid flow. As a consequence, while the precipitate is settling to the perforated pipe, a portion of it will collect on the casing interior and the tubing exterior. In the course of production some of the remaining precipitate may also collect on the interior of the tubing and the exterior of the rods. This precipitate might seemingly have little or no value, but it has recently been shown that a protective coating could be obtained in city water distribution lines through a similar treatment. In this case, the city water before treatment was started contained enough iron from the piping system to discolor bath fixtures and the like. Sufficient calcium hydroxide was added to the raw water until it was saturated with calcium carbonate and the aggressive carbon dioxide reduced. Under this condition, a film of calcium carbonate of "egg shell" thickness was gradually built up in the city water mains. That this film was protective is shown by both a decrease in leak repair costs and a cessation of "red water" troubles.

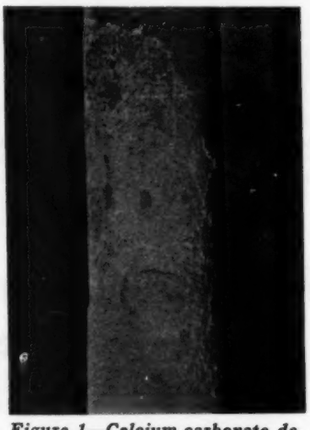

Figure 1—Calcium-carbonate deposit on exterior of tubing by soda-ash treatment

Since the addition of alkalies to oil well fluids likewise cause a precipitation of calcium carbonate, there is a possibility that this material can be depended upon to form a continuous coat of a protective nature over the well equipment. That calcium carbonate does settle around the tubing exterior above the perforated pipe is shown. This photograph was taken to show the thick coating which formed on the exterior of a string of tubing in a well treated with sodium carbonate for several months. Unfortunately, there is no way of regulating the disposition of the precipitate after it forms in the annulus between the tubing and the casing. Where there is very much fluid above the perforated pipe, a large quantity of the precipitate settles around the tubing exterior when it is most required on the interior. Another drawback to the success of the treatment lies in the continual rod wear against the tubing. This action would largely tend to prevent the formation of a continuous layer of coating.

Change in Acidity of Well Fluid

If alkaline solutions are added to the well brine in excess of that necessary to neutralize the hydrogen sulphide and precipitate the calcium and magnesium salts, then any further addition of alkali will result in a change in the hydrogen-ion concentration. In order to obtain a reduction of corrosion by this method, it would be necessary to increase the hydroxyl-ion concentration above the value pH 10. This may be expressed by stating that to change the alkalinity of 100 bbls. of distilled water from a point of exact neutrality to a pH of 10 would require 9 pounds of sodium hydroxide. At a price at the well head of 5 cents per pound of sodium hydroxide, a daily operating cost of 45 cents per 100 bbls. of brine would be necessary. It will also be remembered that this is in addition to the quantity of sodium hydroxide necessary to neutralize the hydrogen sulphide and to precipitate the calcium and magnesium salts. The resulting high cost prohibits treatment to this extent.

Field Tests of Alkaline Treatment

In order to determine the value of the alkaline treatment, field tests were conducted over a considerable period of time on five wells, which were known to produce more or less corrosive fluid. Three of these were in the Goose Creek (Texas) Field, and two in the Smackover (Arkansas) Field.

The data for each well as to the fluid produced, the quantity and age of the tubing, and other points of importance are given in Table 1.

One of the most important considerations of the test was the quantity of treatment required daily. Table 2 was prepared to facilitate choice as to the allowable expenditure. This table shows the approximate daily allowable treating cost if the treatment will extend the tubing life for one year over its life without treatment.

TABLE 2—EXTENSION OF TUBING LIFE BY DAILY ALLOWABLE TREATING COST

Tubing life without treatment (years)	Cost of 2,500 ft. tubing	Extension of tubing life from treatment (years)	Approximate daily allowable expenditure
1	$730	1	$2.00
2	730	1	1.00
3	730	1	0.65
4	730	1	0.50
5	730	1	0.40

The life of the tubing in the wells selected for test varied from one to eight years, with an average life for all five of about four years. It was decided to limit the daily treating cost to 50 cents and follow the results. As shown by Table 2, an average extension in tubing

(Continued on Page 42)

*Before midyear meeting, A.P.I., Pittsburgh, Pa.
Author's title: "Effect of Chemical Treatment of Well Fluid on Tubing Corrosion."

NEWS FROM FOREIGN LANDS

U. S. S. R.

Socony-Vacuum Corp. has closed a contract with the oil administration of the U.S.S.R. covering the purchase of 500,000 bbls. of refinery products. The amount of money involved totals approximately $1,000,000.

This is said to be the first transaction between the U.S.S.R. and any American company in over two years. Previous to that time both the Standard Oil Co. of New York and the Vacuum Oil Co., which now constitute the Socony-Vacuum Corp., bought considerable quantities of Russian refinery products for distribution in its European and Near East marketing facilities which can be conveniently served by the Russian refineries with water transportation facilities.

With the exception of a small amount for delivery of products in India, these contracts were not renewed as they expired and in exports shipments, the U.S.S.R. has been forced to depend largely on European buyers. The contract for delivery of products in India was taken over by the Standard Vacuum Oil Co. last year when that company was formed through a merger of the Far East properties of the Standard Oil Co. of New Jersey and the Socony-Vacuum Corp.

Although not confirmed by either the buyer or seller, it is believed that additional Russian products will be purchased by the Socony-Vacuum Corp. and possibly other American companies before the end of the year. It is known that the Government has encouraged the purchase of Russian products, including oil to aid in establishing satisfactory trade relations between the two countries. The Soviet have indicated their willingness to purchase oil field and refinery equipment in those countries in which they were able to secure outlets for their oil products.

Oil operations in Russia continue to expand according to the latest available reports, which include March. Crude oil production in March in the U.S.S.R. averaged 472,000 bbls. daily, which compares with 446,000 bbls. daily in February and 384,500 bbls. in March of last year. This increase of almost 25 per cent in March over March, 1933, has been brought about by substantial gains by all the production trusts with the exception of Grozneft. The production of the latter trust, as shown in the accompanying table, is running about 75 per cent of last year.

The expansion in refinery operations has not been as great as in the producing end. Crude oil runs to stills averaged 395,000 bbls. daily in March, a gain of 15,000 bbls. daily over February. In March last year crude runs averaged 350,000 bbls. daily.

Crude runs to stills at plants of the Azneft trust in March ran 15 per cent ahead of last year and 5 per cent in excess of plan. With a new refinery in operation the Sredazneft trust has increased its crude runs to stills 50 per cent over last March, but is still far below the government's plan of operation. Gasoline production in March was only 8 per cent above last March, reflecting a decreased yield of motor fuel from crude oil. The production of refined kerosene, which is approximately 80 per cent more than the gasoline output, was 11 per cent greater in March than in March, 1933.

Two trusts—Maineft and Embaneft—in March exceeded the plan of the U.S.S.R. oil administration. The production of the Azneft trust, centering in the Baku district, continues to account for approximately 80 per cent of the total output in Russia. Its production in March was 43 per cent greater than in March, 1933, and is running 90 per cent of the plan with prospects of greater increases before the end of the year.

1934 OIL OPERATIONS IN U.S.S.R.

Crude Oil Production—by Individual Trusts (data in metric tons)

Trust—	March, 1934	Per cent of plan	February, 1934	March, 1933	March, 1934, to March, 1933 (%)
Azneft	1,619,400	90.1	1,367,900	1,139,500	142.1
Grozneft	346,300	73.5	315,300	473,000	73.2
Maineft	76,600	123.1	56,200	48,800	157.0
Embaneft	20,800	106.7	19,000	15,800	131.6
Other trusts	29,300	63.7	25,800	25,700	114.0
Total	2,092,400	87.3	1,784,200	1,702,800	122.8

Drilling Operations—by Individual Trusts (data in meters)

Drilling in proven fields	78,573	88.9	72,818	47,709	164.7
Wildcatting in old areas	18,533	90.5	15,093	15,411	120.3
Wildcatting in new areas	12,014	69.7	9,330	7,774	154.5
Total	109,120	86.5	97,241	70,894	153.9

Refinery Operations—by Individual Trusts (data in metric tons)

Crude Oil Runs to Stills

Azneft	1,814,100	105.6	1,018,300	1,624,800	115.5
Grozneft	544,400	73.5	475,600	499,900	108.9
Oil plants	20,300	71.2	17,500	29,200	69.5
Sredazneft	2,400	28.6	3,000	1,600	150.0
Total	1,751,200	92.3	1,514,400	1,555,500	112.6

Gasoline Production

Azneft	82,300	87.3	68,500	83,900	98.1
Grozneft	134,300	82.7	125,400	150,000	89.5
Oil plants	1,900	77.6	2,300	2,100	90.5
Sredazneft	300	39.5	300	200	150.0
Total	218,800	78.1	196,500	236,200	108.9

Refined Kerosene

Azneft	273,700	....	234,700	258,500	105.9
Grozneft	118,900	....	105,100	92,000	129.2
Other plants	1,600	....	1,000	3,100	53.4
Sredazneft	300	....	500	100	300.0
Total	394,500	....	341,300	353,700	111.5

Eugene Holman Elected President Creole Petroleum Co., Succeeding E. J. Sadler

NEW YORK, May 19.—Eugene Holman, one of the younger executives of the Standard of New Jersey companies, this week was elected president of the Creole Petroleum Co., a South American operating unit with large production in Venezuela. He succeeds E. J. Sadler now in charge of the domestic production operations of the parent company. Mr. Sadler's retirement from the presidency of the Creole is in line with the recently announced policy of the Standard Oil Co. (New Jersey) in which the directors of the parent company so far as possible are retiring as officers of the operating subsidiaries.

Since coming to New York in 1929 as assistant to Mr. Sadler, Mr. Holman has been active in several of the South American and Mexican subsidiaries of the New Jersey company. He is president of the Mexican Petroleum Co., vice president of the Pan American Foreign Corp., in charge of production, president of the Lago Petroleum Corp., vice president of Lago Oil & Transport Co., and an officer or director in other foreign subsidiary units. He is at present inspecting some of the South American properties. Previous to coming to New York he was chief geologist of the Humble Oil & Refining Co., and previous to 1919 was a member of the staff of the U. S. Geological Survey.

E. L. Estabrook was elected a director and vice president of the Creole corporation. F. H. Kay and T. W. Palmer who are connected with the operations were elected to the board of directors.

T. R. Armstrong, vice president of the corporation, announced that net profits for 1933 totaled $4,106,000 after all charges, equal to 59 cents per share on the common stock and approximately double the 1932 profits. The profits for the first quarter of 1934 totaled approximately $1,000,000.

The improvement in profits in 1933 was due to larger production. Last year the corporation shipped approximately

EUGENE HOLMAN

half of its crude production to the United States and the remainder to Aruba Island and Cuba where New Jersey has refineries. At this time the corporation is receiving 67 cents per barrel for its heavy crude oil and $1.34 per barrel for Cumarebo light crude.

IRAQ

According to present plans the filling of the pipe line of the Iraq Petroleum Co. will start about the middle of June. Work is being completed on alternate pump stations and when these are ready to operate early in June the company can start filling the line preparatory to regular operation when the remaining pumping stations are completed. It is estimated that it will require three to four months to fill and test the line. The pipe line totals 1,350 miles, all of which is 12-inch with the exception of 200 miles of 10-inch. The laying of the line was completed the latter part of last year.

The line has 12 pumping stations, three of which are on the main line, four on the northern line with Tripoli as the terminal and five on the southern line which has its terminal at Haifa. By completing alternate stations the management will be able to fill the line while the remaining six stations are being completed. All of the 24 pumps for the stations have been delivered at the station sites and in the case of the six stations are now ready for operation.

Reports from the field show that all the construction features necessary for the permanent operation of the line are under way. The tankage at the Tripoli terminal on the Mediterranean is being completed and tankage is under construction at Haifa. The three submarine lines at Tripoli are being built and two at Haifa.

Permanent sites for those who will have charge of the operation of the line have been selected and dwellings and other living quarters are being built. Due to the extreme climatic conditions and the nature of the terrain the construction and maintenance of these permanent quarters will entail considerable expense.

Present plans call for the delivery of the first crude oil at the Tripoli terminal about October 1 with the Haifa terminal in operation by the end of the year. The ultimate capacity of the line will be 4,000,000 tons yearly or 85,000 bbls. daily.

GREAT BRITAIN

Work on the construction of the new plant at Billingham, England, for the manufacture of petroleum products by hydrogenation is progressing rapidly and it is now believed that this plant will be in operation before the end of the year. The plant is being built and will be operated by the Imperial Chemical Industries, Ltd.

The company decided to build the plant last year after the passage of the British Hydrocarbon Oils Production Act which guarantees preference to hydrocarbon oils manufactured from indigenous coal, shale or peat. The preference represents the difference between the rate of customs duty on imported oil and any excise duty payable on home produced oil. The Billingham plant will have a capacity of 700,000 bbls. of hydrocarbon oil yearly It will represent a capital expenditure of approximately $12,000,000.

COLOMBIA

The movement of Colombia oil to seaports for exportation has greatly increased over the past month according to El Tiempo. The pipe line of the Tropical Oil Co. (International) the major oil interest in Colombia, has increased its runs from 30,000 bbls. daily last month to over 50,000 bbls. daily which is the capacity of the line. The bulk of the crude oil is shipped to the Canadian refineries of the Imperial Oil, Ltd.

Late Fields

OKLAHOMA

An informal conference of representatives of companies operating in the Oklahoma fields will be held with W. J. Armstrong, state umpire for Oklahoma, on Friday at Oklahoma City. It is expected that operators in the South Burbank, Crescent, Lucien and Chandler Fields, all flush areas, will ask for a greater allowable. The State's allowable has been increased 35,300 bbls. per day to a total of 511,700 bbls.

Olympic Oil Co.'s No. 1, C SE NE SE Section 20-7-4, Pottawatomie County, was dry in Hunton lime at 3,775-3,995 feet and had a fishing job. Prince Drilling Co.'s test in C NE SW NW Section 21-7-4, would not flow after acidizing at 3,670-3,946 feet, but swabbed 103 bbls. in eight hours.

KANSAS

Rosenthal and others' No. 1 in NW cor. Section 12-23s-4w, Reno County, Kansas, which had a pay sand at 3,615-25 feet which yielded 350 bbls. per day, drilled deeper to 3,617 feet and will make a test.

MICHIGAN

MUSKEGON, Mich., May 22.—Muskegon Oil Corp. struck an encouraging show of oil and gas, 80 feet in the Dundee, at 2,265-77 feet in No. 1-A Gasser, SE SW NE Section 27-10n-15w, its second wildcat test in Egelston Township, Muskegon County.

An important feature of the new discovery is a 10-foot thickness of pay sand, greater than any wells in original Muskegon Field, 9 miles west. Dundee formation struck at 2,186 feet, or 25 feet higher than in first Egelston wildcat on William Vandormade lease, about a mile east.

Pay sand was shot and will be treated with acid in hope of developing commercial production. The well was estimated good for a few barrels a day and 20,000 feet of gas natural.

Death of H. E. Clark, Laurel Oil & Gas Co.

Harry Edgar Clark, of Glen Campbell, Pa., president of the Laurel Oil & Gas Co., one of the oldest producing companies in the Mid-Continent Field, died Tuesday, May 22, in Houston, Tex., where he had been for several months in the interest of his company.

Mr. Clark came to the Mid-Continent fields early in the century and with Harry Wilson organized the Laurel Oil & Gas Co. about 1903. The company was one of the pioneer operators in the Glenn Pool and has been an active producer ever since.

Deceased is survived by two brothers, J. O. Clark, treasurer and S. L. Clark, vice president of the company, and two sons one of whom, J. W. Clark, is assistant treasurer of the company, which has its executive headquarters in Philadelphia and operating headquarters in Tulsa. Another son, W. D. Clark, resides in Pittsburgh, Pa. Three daughters and one sister also survive.

Pipe Line Construction

NEW PIPE LINE IN MONTANA

The International Pipe Line Co., a subsidiary of the Texas Co. doing business in Montana, has asked for bids on labor for laying a 6-inch diameter screwed pipe line starting in Section 11-34n-6w in the Cutbank oil field, Glacier County, Montana, and terminating at the refinery of the Texas Co. at Sunburst, Mont., in Sec. 18-36n-2w. This pipe line will be approximately 28 miles long and construction companies have already submitted their bids and it is understood that field work will begin shortly.

Arnott Explains Marketing Agreement at Pittsburgh A. P. I. Mid-Year Meeting

BY ROBERT C. CONINE

PITTSBURGH, Pa., May 22.—An unusually large attendance marked the preconvention sessions of the American Petroleum Institute's mid-year meeting here at the William Penn Hotel. The featured activity was the presentation for the first time of the whole underlying plan of the marketing agreement to refiners of the Pennsylvania region by C. E. Arnott, chairman of the Planning and Coordination Marketing Committee. All but 2 of the 50 refiners present, representing some 33 companies, signed.

Mr. Arnott said the plan had not been laid before the Pennsylvania grade operators before because it was desired to have the region's eastern and western competitors in line first to avoid placing the region's small operators at a disadvantage. The two refiners who did not sign are waiting for action by their board of directors.

The necessity for signing the marketing agreement was pointed out by Mr. Arnott with considerable force. He said the trend in Washington is toward legislation to bring about the desired economic results. The industry failed to curb production of crude oil and the result was the proposed Federal petroleum act, Mr. Arnott said. It was also proposed that regulations covering the refining branch of the industry be incorporated fully in the proposed act but the industry won in its desire to regulate itself in this department, Mr. Arnott said. Marketing is in a similar position and it is certain, the speaker continued, that failure of the marketing agreement will result in the Federal Government's intervention in a manner which would be particularly undesirable.

C. L. Suhr, president of the National Petroleum Association, presided at this meeting. Mr. Arnott was introduced by Ralph T. Zook, a fellow member of the Planning and Coordination Committee. Fayette B. Dow, general counsel of the National Petroleum Association, assisted the chairman.

It is expected that more than 500 members will attend the mid-year meeting. Developments in the Eastern Fields, notably those of Pennsylvania, will engage the attention of technologists attending group sessions of the division of production beginning Wednesday, May 23. Deep sand development, use of alloy cast iron in oil production equipment, recent improvements in manufacturing steel for oil field equipment, and special metals in oil field practice will hold the interest of the Pennsylvanians because of the connection not only with oil, but with other Pennsylvania products—steel, iron and various metals and oil field machinery.

Several Pennsylvania men will present papers at meetings of the division of refining on May 24. Refinery problems will be considered at the morning session, while in the evening the discussion will concern automotive problems.

Developments under the oil code will be discussed by representatives of the division of marketing at a meeting Wednesday morning. The afternoon will be given over to a general session of the three divisions with Axtell J. Byles, president of the Institute; W. R. Boyd, Jr., executive vice president, and Baird H. Markham, director of the American petroleum industries committee, as speakers.

Producing, refining and marketing problems will occupy group sessions all day Thursday. In the evening the members of the Institute residing in Pittsburgh will entertain at a complimentary dinner at the Duquesne Club.

The Institute's board of directors will meet in executive session Wednesday morning, and the American Petroleum Industries Committee, the taxation and legislation group, will meet this afternoon.

Scarcity of Fuel Oil Resulting From the Detouring of Commerce by Regulation

When the normal flow of commerce is detoured by regulation it sometimes backs up or overflows in unexpected ways, says the Lamp, published by the Standard Oil Co. (New Jersey).

For many years the petroleum industry has operated primarily to obtain gasoline and has taken a loss on some by-products to move them into consumption. Fuel oil particularly, produced of necessity to get the gasoline, proved such a drug as to bring it into competition with the cheapest coal. There is an economic field for fuel oil in which it is worth considerably more than the coal required to develop the same amount of steam. This is principally on ships, where the problems of bunker space, wages and maintenance of stokers are serious factors. But fuel oil sold so low as to displace coal even in shore installations convenient to tidewater and equipped with automatic stokers.

Imports of low naphtha content crude oil were greatly reduced by agreement between importers and the Federal Government and by heavy duties. These measures were adopted in the interests of our domestic production. They had their part in bringing about a substantial advance in the price of crude oil. Also they had the not unforeseen effect of reducing the supply of fuel oil and gas oil on the Eastern Seaboard where the principal demand exists. Domestic crude is high in gasoline content and, particularly where the cracking process is employed, produces a much smaller percentage of fuel oil than the heavy crudes from South America. The result is that while the United States has been producing more crude than is required and running more of it for gasoline than has been warranted by the demand for motor fuel, the stocks of fuel have been going down at a rapid rate.

The situation would not be relieved by opening wider the production allowables nor by increasing refinery runs. It is not good business to process domestic crude primarily for a by-product.

Notwithstanding the fact that domestic consumption east of the Rockies declined 47,000,000 bbls. between 1929 and 1933, there has been a pronounced shortage of fuel oil and gas oil for three out of the last four years. This shortage amounted to 10,000,000 bbls. in 1932 and to 7,000,000 bbls. last year. In this period stocks have been reduced from 20,000,000 bbls. to 17,000,000 bbls.

The present situation, which is not to the liking of either buyers or sellers, was foreseen when imports were reduced. Not only has there been a large reduction in the imports of gas and fuel oil themselves, but also in the importation of heavy crude from Venezuela and Colombia which formerly provided substantial quantities of fuel oil for the East Coast after refining. In four years from 1929 the annual production of gas and fuel oil east of California declined 56,000,000 bbls., or from 283,000,000 bbls. in the earlier year to 227,000,000 in 1933. There was a loss of another 25,000,000 bbls. a year through the partial embargo on South American crudes.

To some extent the shortage on the East Coast has been relieved by shipments from California, where there has been a plentiful supply. For the first three months of the current year gas and fuel oil has been moving eastward through the Panama Canal at a rate of about 20,000,000 bbls. per year. However, this source is much more costly than the previous supply. The California market is above 65 cents a barrel and the charter rate for transportation to New York harbor adds as much more, bringing the cost on the eastern seaboard to a minimum of $1.30 per barrel before taking into account the costs of handling through terminals, and marketing.

There is nothing in sight at the moment to indicate that fuel oil will be more plentiful in the near future. With improvements in refining to recover the maximum percentage of gasoline, there has been a progressive decline in the yield of fuel oil, from 38 per cent of the crude in 1929 to 32½ per cent in 1933. This is a result largely of increased cracking of fuel oil. As compared with the earlier year, it is estimated that there has been an increase of 31,500,000 bbls. of fuel oil used for the production of gasoline.

Another factor which has contributed to the scarcity is the growth in the demand for fuel oil for domestic and commercial heating. Four years ago the consumption of heating oil in the entire United States was 14,000,000 bbls. Last year it was up to 74,000,000 bbls.

For the first two months of 1934 there was a gain of 11 per cent in the consumption of fuel oil over the first two months of 1933.

JUNE CRUDE ALLOCATIONS

WASHINGTON, D. C., May 21.—Crude oil allocations for June have been announced by Harold L. Ickes, oil administrator, as follows: Illinois, 12,600 bbls.; Kansas, 130,300 bbls.; Indiana, 2,300 bbls.; Louisiana, 83,000 bbls.; Kentucky, 13,100 bbls.; Michigan, 32,800 bbls.; New York, 11,700 bbls.; New Mexico, 48,000 bbls.; Ohio, 12,900 bbls.; Oklahoma, 511,700 bbls.; Pennsylvania, 44,000 bbls.; Texas, 1,032,300 bbls.; West Virginia, 12,300 bbls.; Colorado, 3,500 bbls.; Arkansas, 33,000 bbls.; Montana, 8,500 bbls.; California, 500,300 bbls., and Wyoming, 36,000 bbls. Total 2,528,300 bbls.

Changes Position

Harry Cookston, formerly associated with the Bettis Sales Co., has joined the sales staff of the W-K-M Company, Inc. He will work in the Gulf Coast territory, which he has covered for years

About Gasoline

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Universal Oil Products Co
Chicago, Illinois

Dubbs Cracking Process
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THE OIL AND GAS JOURNAL

PRODUCING REFINING NATURAL GASOLINE PIPE LINE

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Rumors About Crude Prices

Talk of a possible softening of the crude market is being heard. It is not superficial gossip but comes from those who have made a study of the situation at the present moment. They point to the stagnation in enforcement, with the Federal administration awaiting authority and overproduction increasing in East Texas, and they ask how long can that continue before the price of crude is affected.

It is true the price has been maintained since the code became effective despite the failure of the gasoline market to show a corresponding quotation. But this artificial situation was based on expectations of stabilization which have not been realized.

If the hands of the Federal administration continue to be tied and the East Texas situation becomes worse instead of better, what can we expect?

If the expectations upon which the price of crude was set are ended there will be nothing to prevent crude following gasoline.

For a time fear of Federal intervention reduced the flow of hot oil, a positive demonstration that Federal authority could accomplish something.

The proposed appeal to the United States Supreme Court also had a deterrent effect until the case was postponed until Fall.

Now the issue has been transferred to Congress and the "hot oil gentlemen" feel they can do as they please until Congress acts.

The question being asked is can the price of crude withstand that flood of hot oil and cheap gasoline made from it dumped on the market at the opening of the main consuming season?

It depends largely upon the promptness with which Congress acts on the Federal petroleum bill. Hearings in the Senate Committee began Monday. Hearings in the House Committee are set for next Monday.

Considering the mass of testimony heard at oil hearings in Washington during the past eight or nine months the subject should be pretty thoroughly exhausted without further prolonged investigation.

The Tulsa speech of Administrator Ickes should be a completely convincing exposition of the situation to any Senator or Congressman who prefers reason to rumba.

His further statement before the Senate Committee emphasized the urgency of action. There is a man who has no delusions. He does not mistake hopes for facts.

Witness his frank statement that "one especial reason" for the enactment of the bill was that "the future effectiveness of the oil code was very doubtful." There are, he said, "many loopholes. The penalties are woefully inadequate."

If matters are left as they are these weaknesses will continue to delay and thwart all efforts at stabilization under the existing conditions. The Petroleum Administration, the Planning and Coordination Committee, National Coordinator, and all will be continually at the mercy of the "hot oil gentlemen" in East Texas and other chiselers.

A crude price structure based on hopes that plainly cannot be realized cannot last indefinitely in such circumstances. It is that recognition of being up a dead end on enforcement that is giving rise to the talk of crude price softening.

At the same time, having held out so long in hope of stabilization being reached, the price structure should be maintained until Congress has a chance to act on the new bill.

The situation is not hopeless. In fact now that it has been put up to Congress with the support of the President we ought to get definite and constructive action that will end our worries.

There is too much at stake for a recovery Congress to risk throwing the country's second greatest industry back into the demoralization of a year ago, undoing all the good that has been accomplished. But that is precisely what will happen if Congress fails to take the necessary action.

We believe Congress will not fail, and for that reason look for the continuance of the crude price structure until stabilization brings better days.

Oil Dethrones Cotton

Texas newspapers are printing as startling news the results of a survey by the Texas Petroleum Council showing that oil has become the big money crop of Texas, displacing "King Cotton."

In 1928 the returns from cotton were $450,675,000 and from oil $236,411,000. In 1929 cotton brought in $315,200,000 and oil $323,540,000, surpassing cotton for the first time.

In 1930 cotton returned $192,700,000 and oil $288,410,000. In 1931 cotton dropped to $146,300,000 and oil returned $199,000,000.

In 1932 cotton brought only $128,905,000 while oil brought in $170,315,000 and last year cotton's total was $204,040,000 to $237,872,000 from oil.

This last was based on an average price of 60 cents a barrel. It is interesting to compare the production of oil in Texas for the several years with the revenue received for it.

In 1928, 255,000,000 barrels of oil brought $236,000,000 to Texas. In 1929, 298,00,000 barrels brought $323,000,000. In 1930, 292,000,000 barrels brought $288,000,000.

The East Texas field was discovered in September, 1930. That field produced a million barrels in one day in August, 1931, before the militia stepped in, and oil sold as low as a dime a barrel.

So in 1931 it took 328,000,000 barrels of Texas oil to bring in $199,000,000. In 1932 it took 314,000,000 barrels to get $170,000,000.

And last year it took 401,000,000 barrels of Texas oil to return $237,000,000 as against 255,000,000 barrels in 1928.

Yet there are some Texas officials charged with the regulation of production and some Texans in Congress clamoring for the State's right to waste its oil.

"King Cotton" has been coddled by Texans who were willing to submit to anything in the way of regulation that would stop the downward skidding of the cotton price structure.

Perhaps now that the comparative figures have been placed before them they will be equally insistent upon protective regulation for the State's bigger money crop, oil, which is being recklessly squandered for private gain in East Texas.

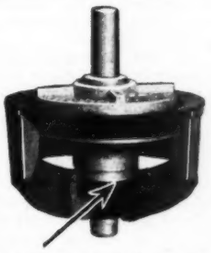
NRA MEMBER U.S. WE DO OUR PART

RECORDS WORLD OVER

PROVE superiority

of

MISSION PRODUCTS



The Standard of Comparison

MISSION VALVES

The Standard of Comparison

New Improved MISSION PISTONS

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- GREAT SAVING IN LABOR AND MONEY because all wearing parts are replaceable, and replaceable parts cost much less than a new valve seat.
- BLOW IS TAKEN ON THE REMOVABLE STEEL BUSHING (indicated by the arrow), thus avoiding metal contact on the sealing surface of the seat.
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Write for a list of remarkable records taken from production reports of major companies and operators. One set of Mission Valves made 58,000 feet of hole without the replacing of a single part.

In line with the Mission Policy . . .

"If a product designed by Mission is not proven superior Mission will not produce it..."

we make this ANNOUNCEMENT:

Through many years' experience, first as a distributor and later as a manufacturer of pressure packed pistons, using the most severe field and laboratory tests, the Mission Manufacturing Company has made marked strides in discovering and eliminating the causes of piston failure.

Even though our first piston was a good one and stood among the leaders, yet because it did not occupy that position of clean-cut and uniform superiority we demand of all Mission products, we introduced, two months ago, a still better piston, one that was considered outstanding by many efficient operators.

Yet our continued research and rigid field tests revealed still further means of improving its performance, resulting in our announcing now the NEW IMPROVED MISSION PISTON . . . a truly worthy companion of the famous Mission Valve.

SION

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TEXAS, U. S. A.

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Exclusive Distributor West of the Rockies

Purchase of Distress Gasoline Stocks by Majors Creates Stronger Market in Group 3 Area

By T. F. SMILEY

A stronger gasoline market prevailed in the Oklahoma (Group 3) territory this week as had been foreshadowed by the announcement that distress stocks held by the smaller independent concerns were to be bought by large established companies.

The plan as originally discussed and as recommended by the Planning and Coordination Committee comprehended the purchase by 29 major refiners of 3 per cent of their monthly requirements of gasoline instead of taking this material from their own stocks. It is known that about 15 majors have been buying gasoline from smaller refineries in the last week. How many of the others who made up the original 29 have also been buying is a matter of conjecture. So, too, is the matter of how much has been bought by those known to have made any purchases at all under the plan.

Some of the more breezy estimates have been to the effect that not less than 1,000 cars of distress motor fuel were taken off the hands of small East Texas refiners in the last week and that not a barrel of surplus gasoline remained in that area.

No Pool in Operation

Contrary to a widely accepted supposition, no pool of either buyers or sellers is in existence. Each buyer and each seller acts independently of anybody else. Nor is evidence at hand that any of the major refiners are setting out to obtain 3 per cent or any other fixed proportion of their needs by purchases from smaller operators. Each conducts his own negotiations with holders of excessive stocks, buying as much or as little as he sees fit.

While there is virtual unanimity in ascribing the more buoyant gasoline market to buying already done or in prospect, there is no general agreement that the present plan of absorbing distress stocks will be of more than passing efficacy.

Considering East Texas as the region chiefly productive of market chaos, it is conceded that an overwhelming majority of refiners in that area would choose for various reasons to keep free from any participation in hot oil operations and to comply with every law if that could be done without conducting their business at a loss. It is conceded too that steady and generous buying by the majors could really remove all excessive stocks of gasoline and prevent their reappearance, thus improving conditions to such an extent that refiners could pay the posted price for crude and still make a profit.

But doubting observers assert that in the absence of vigorous, unrelenting law enforcement there always will be in East Texas, so long as it remains a flush field, an element that will not hesitate to violate the law if such violation promises a profit; and it is declared there are enough of these irregulars to upset any plan that requires co-operative action. It is pointed out that there is nothing to prevent an influx of new refineries, seeking profits under improved conditions. And skeptics ask how long, in such a situation, will major refiners be willing to play Santa Claus and voluntarily hand out to others business which they are equipped to take care of themselves.

Regardless of the long-term value of the purchasing plan, however, there is a disposition to accept its present beneficial results gladly and to hope that these will be carried on into the summer by the usual sharp increase in demand for motor fuel.

Naturals Up Also

Higher prices for natural gasoline kept step with the rising quotations for the refined product, though from different causes. Most of the grades annexed an eighth cent or a quarter cent to the prices that prevailed last week, but this was attributed, not to refinery demand, which actually slackens at this season, but to the fact that jobbers are taking the low-pressure material in preference to refinery gasoline.

Natural gasoline men are waiting interestedly for developments in the movement launched at the recent convention of the Natural Gasoline Association of America to have a permanent subcommittee representing this division of the petroleum industry in the Planning and Coordination Committee. The group of seven named by the convention to discuss the subject with Sercetary Ickes is now in Washington.

Although kerosene was reported stronger in some other refining areas of the country, it displayed a distinctly weaker tone in the Group 3 district and quotations were an eighth to a quarter lower.

Neutrals were holding the remarkable strength accumulated in recent weeks and though prices were unchanged, it was believed that in the light of the scarcity of offerings another advance was likely.

Bright stocks and cylinder stocks were steady and in good position.

Gas oils were strong and scarce, with quotations up an eighth on the 32-36 and U.G.I. grades.

Wax was slow, with expectation of its continuing so for the next several months. Prices were unchanged.

Refined Oil Market Barometer

Effects of the announced plan for absorption of distress stocks of gasoline by major refiners were observable in price advances in almost all areas. Nearness of the season of heaviest consumption provided an additional undertone of strength. Meetings of jobbers from various states and conferences between marketing groups with representatives of the oil administration in Washington are regarded as likely to bring about more stabilized conditions.

Mid-Continent.—Both refined and natural gasolines up. Kerosene weak. Gas oils and lubricants strong.

East Coast.—Gasolines and fuels strong, with general market looking better.

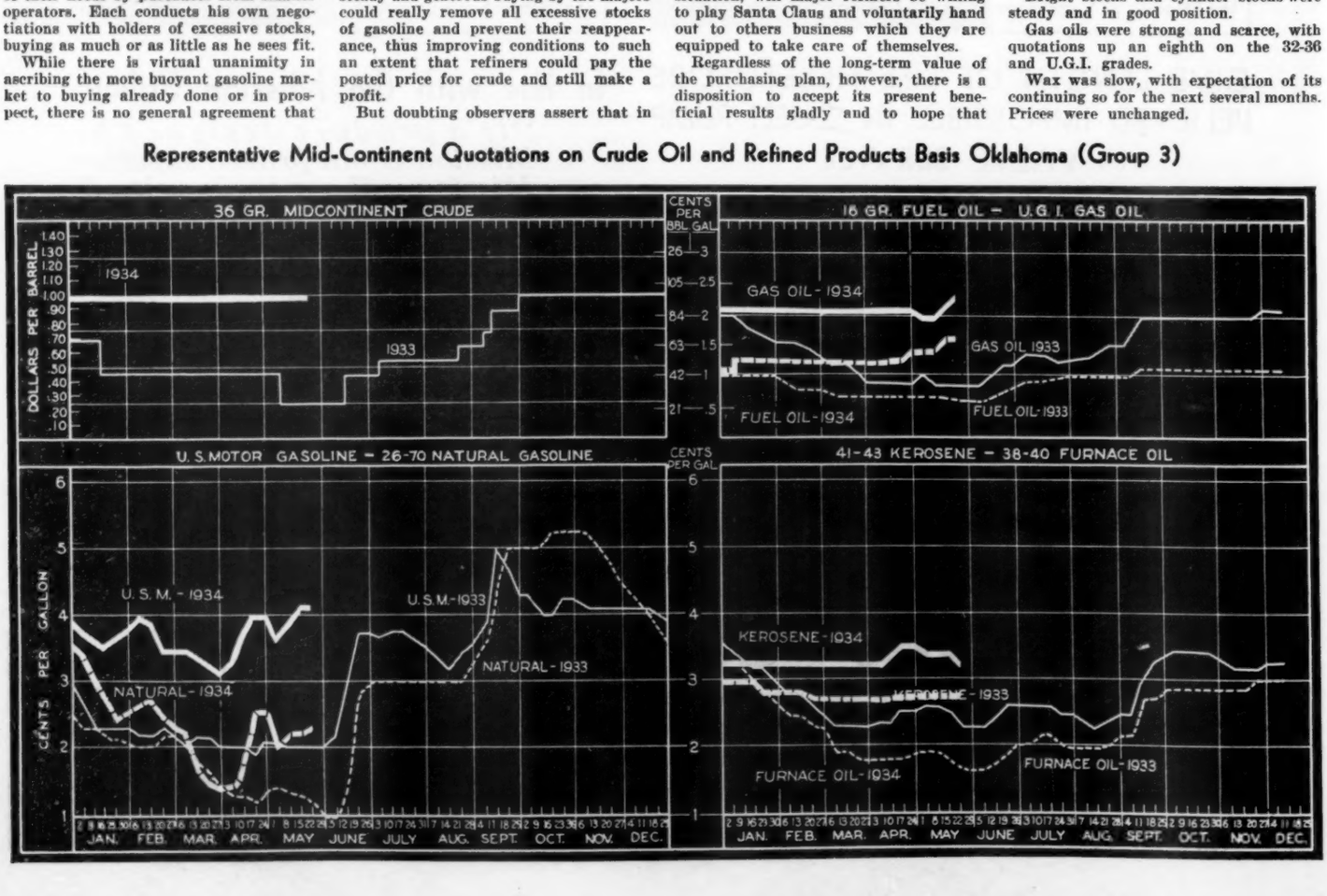
Gulf Coast.—Buying of distress gasoline in East Texas has tightened Gulf market. Kerosene lower. Lubricants steady. Fuels firm.

Pennsylvania.—Gasoline steady. Kerosene up and stronger market seen. Neutrals firm. Wax weak.

California.—All markets quiet, with no price changes. Refiners apparently waiting for final decision on marketing agreement.

Chicago.—Gasoline strong, offerings scarce on heavy buying. Fuels in demand. Naphthas quiet.

Representative Mid-Continent Quotations on Crude Oil and Refined Products Basis Oklahoma (Group 3)



Gasolines and Fuels Advance on Atlantic Coast and Better Feeling Prevails as to Outlook

By C. O. WILLSON
New York Bureau, The Oil and Gas Journal

NEW YORK, May 21.—The principal products of refineries in this territory, gasolines and fuels, advanced over a wide range during the past week and as a result the market generally presents a much better front than it did at the start of the month.

Following advances of the previous week in New York, the Standard Oil Co. of New York, Inc., effective May 18, advanced gasoline tank wagon and service station prices 1 cent per gallon in New York and New England. At the same time, the company advanced its tank car prices one-half cent per gallon at most points and three-fourths cents per gallon in the New York harbor area. Earlier in the week the company had advanced at several New England points. On the same date the Standard Oil Co. of New Jersey announced an advance of one-half cent per gallon in gasoline tank wagon and service station prices in its territory including Standard of Louisiana area. The increases did not apply to Pennsylvania, Delaware and Arkansas.

All of the larger distributors were reported to have met these advances in tank wagon and service station prices. In regard to tank car prices some of the smaller sellers were slow in advancing their quotations to the higher levels established by the New York and New Jersey Standards. There were general advances amounting to at least one-fourth cent over the lows of a week ago and in many instances refiners and water terminal operators had made a flat advance of one-half cent per gallon on all grades of gasoline they have to offer. Jobber buying was good and many were predicting additional advances before the end of the month.

In the fuel oil end the action of the P. & C. committee in Washington with the authority of the oil administrator, in approving new forms of contracts with top prices was interpreted as a distinctly favorable development. This action has been expected for several weeks and will now permit refiners to close long time agreements with tank car buyers and starting this week there will be a rush in all parts of the East to close contracts for the season with consumers covering all classes of domestic buyers.

Effective today the Standard Oil Co. of New Jersey advanced the tank car price on its No. 2 and No. 4 heating oils one-fourth cent to 5 cents per gallon. Its No. 1 oil remains at 6 cents with No. 5 oil $1.50 per barrel and No. 6 oil $1.30. The 28-32 Diesel oil in tank car lots was advanced from 4½ to 4¾ cents. Bunker C fuel oil and Diesel oil for marine use were not changed.

Practically all the larger distributors today made effective the following tank wagon prices on contracts for heating oils with consumers for a year's period starting June 1. Range oil and No. 1 furnace oil, 8½ cents, with a top of 10¾ cents; Nos. 2, 3 and 4 furnace oils, 7 cents with top of 8¾ cents; No. 5 oil, 5 cents with top of 6 cents; No. 6 oil, spot market price with a top of $1.60 plus 50 cents. The present price for No. 6 oil in tank car lots based on the Standard of New Jersey schedule is $1.30, to which 50 cents is added on tank wagon deliveries in greater New York. The top price on contracts made at this time will be $1.60 tank car plus 50 cents for tank wagon deliveries.

Improved Outlook

The developments of the past week have brought a better feeling as to the market outlook for this territory over the summer months at least. In regard to tank wagon and service station prices, quotations have returned to the levels in effect early this year at most points in New York and New England. In the Standard of New Jersey territory all but one-half cent of the one and one-half cent reduction made effective in early February has been regained. Tank car prices at most seaboard points are within one-fourth cent of the levels established last fall. In brief most of the ground lost in the gasoline market of this territory when prices collapsed due to a weak gasoline tank car market has been regained and the market is in a position for further advancement whenever conditions justify.

Sellers of overhead fuels will start the consuming season on furnace oils with the base tank car prices at least 1 cent higher than a year ago and the tank wagon prices 1 to 2 cents higher. With the top price provisions, the sellers will have the advantage of any improvement in conditions which results in general advances in spot prices up to 20 and 25 per cent of the base prices as provided in the new contracts. Bunker C and other marine fuels are already substantially higher than they were a year ago.

The permanency of these improvements and any additional gains obviously are dependent on general conditions in the oil industry centering in the crude oil production and refinery control in Washington. The advances here are interpreted as indicating confidence in the program as now outlined at Washington.

In connection with the advances here, however, many are emphasizing the necessity of similar advances in the Gulf Coast coastwise and export markets. They point out that the higher prices will be a constant temptation for dumping on the part of the Gulf Coast operators and this dumping, if continued over any length of time, is certain to bring a reactionary market here. Due to their direct connection with the Gulf Coast market, students are emphasizing the necessity of eliminating "hot oil" operations in East Texas and also a reduction in crude oil production. They also point out that the foreign gasoline market continues inactive so far as new business is concerned with present quotations too low to support the new prices now effective in eastern domestic markets.

Lower Gasoline Output

Part of the optimism in this territory over the past week in regard to the gasoline market is due to the gasoline production allowables for June announced by the national co-ordinator. The allowable for East Coast refiners is 5,720,000 bbls. for the month or 190,600 bbls. daily. This is approximately the same as the actual production in March based on the Bureau of Mines report and less than the output since March as estimated from the A.P.I. weekly reports. June is one of the four best gasoline consuming months of the year and if the program of the P. & C. committee is carried out the actual gasoline production for the month will be less than the average for the early months of this year. The June allowable is also less than the production in June, 1933.

With gasoline consumption in this territory running from 5 to 10 per cent above last year the planned refinery output for June should result in substantial reductions in storage and prevent dumping, a development which, if it materializes, could easily support higher market levels. The same general situation applies to other refinery and consuming areas. The "if" in the proposition has to do with the ability of the Washington authorities to enforce the refinery production allocations.

Similar allocations were made monthly starting last fall, but little attention was paid to them by individual refiners with the result that stocks accumulated more rapidly than desired. The machinery provided for in the new allocations under the national co-ordinator is much more elaborate than previously and provides for allocations extending to the individual refiners. Presumably the enforcement feature is on a better basis so that

(Continued on Page 51)

American Petroleum Institute Weekly Refinery Statistics

Figures below reported for week by American Petroleum Institute. (1) Per cent refinery capacity represented. (2) Daily average crude runs to stills. (3) Finished motor fuel stocks at refineries, bulk terminals, in transit and pipe lines. (4) Gas oil and fuel oil stocks. All figures in 42-gallon barrels.

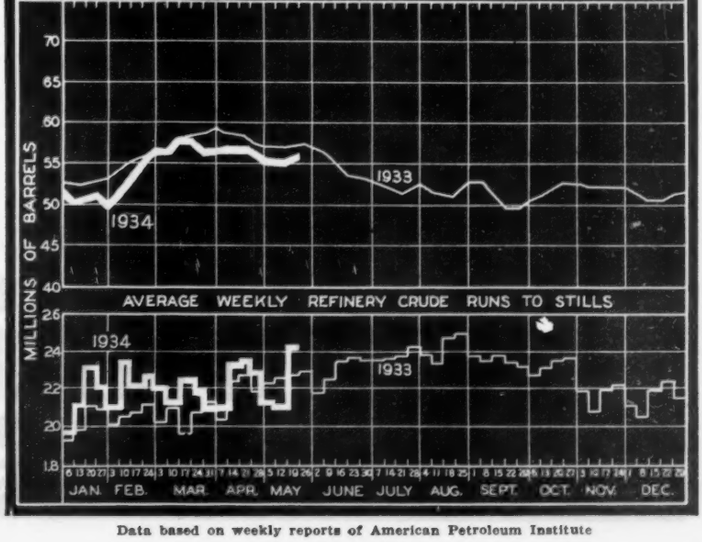
Note—Gasoline stocks 1933 and 1934 not directly comparable for in 1933 large volumes of unfinished and "other motor fuel" were included.

Week Ending May 19, 1934, Compared to Week Ago

	Week Ending May 19, 1934				Week Ending May 12, 1934			
	(1)	(2)	(3)	(4)	(1)	(2)	(3)	(4)
East Coast	100.0	478,000	17,051,000	7,003,000	100.0	478,000	17,709,000	7,170,000
Appalachian	93 3	105.000	1,637,000	824,000	93.3	94,000	1,724,000	845,000
Ind., Ill., Ky.	94 6	340,000	8,841,000	2,783,000	94.6	295,000	9,065,000	2,804,000
Okla., Kans., Mo.	83.7	253,000	5,509,000	3,076,000	83.7	246,000	5,496,000	3,006,000
Inland Texas	47.6	100,000	1,379,000	1,761,000	47.6	96,000	1,372,000	1,756,000
Texas Gulf	97.5	488,000	4,663,000	5,350,000	97.5	471,000	4,507,000	5,126,000
La. Gulf	96.4	113,000	1,210,000	1,049,000	96.4	125,000	1,300,000	1,101,000
N. La. and Ark.	83.7	49,000	269,000	473,000	83.7	42,000	263,000	493,000
Rocky Mtn.	66.7	31,000	1,270,000	692,000	66.7	32,000	1,349,000	706,000
California	96.9	473,000	12,532,000	79,885,000	96.9	439,000	13,508,000	80,172,000
Total U. S.	89.7	2,430,000	54,361,000	102,896,000	89.7	2,368,000	55,293,000	103,176,000

Week Ending May 19, 1934, Compared to Year Ago

	Week Ending May 19, 1934				Week ending May 20, 1933			
	(1)	(2)	(3)	(4)	(1)	(2)	(3)	(4)
East Coast	100.0	478,000	17,051,000	7,003,000	99.1	463,000	16,681,000	6,579,000
Appalachian	93.3	105,000	1,637,000	824,000	95.0	93,000	2,177,000	822,000
Ind., Ill., Ky.	94 6	340,000	8.841,000	2,783,000	97.5	304,000	8,673,000	3,779,000
Okla., Kans., Mo.	82.7	253,000	5,509,000	3,076,000	84.9	216,000	4,885,000	3,076,000
Inland Texas	47.6	100,000	1,379,000	1,761,000	56.4	101,000	1,737,000	2,164,000
Texas Gulf	97.5	488,000	4,663,000	5,350,000	97 7	455,000	5,921,000	5,957,000
La. Gulf	96.4	113,000	1,210,000	1,049,000	97 3	108,000	1,522,000	1,969,000
N. La. and Ark.	83.7	49,000	269,000	473,000	88 5	44,000	316,000	579,000
Rocky Mtn.	66 7	31,000	1,270,000	692,000	90.8	40,000	1,264,000	656,000
California	96.9	473,000	12,532,000	79,885,000	94 6	442,000	13,986,000	98,428,000
Total U. S.	89.7	2,430,000	54,361,000	102,896,000	91.6	2,266,000	57,162,000	124,009,000



Data based on weekly reports of American Petroleum Institute

NATIONAL CASING HEADS

TYPES DM & DMK

The National Type DM Casing Head is a simple compact assembly, easy to install and convenient to use. It offers both effective packing against high pressures and safe, positive slip suspension of long casing strings.

The Type DMK Head is very similar in construction to the Type DM, but is used where the inner string is run under pressure. It is designed to eliminate waste, fire hazard and unsafe working conditions by preventing escape of oil and gas.

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THE NATIONAL SUPPLY COMPANY

NATURAL GASOLINE MANUFACTURE

Decrease in California Natural Gasoline Stocks

The daily average natural gasoline production in California during March was 31,204 bbls., an increase of 50 bbls. over February. Refinery utilization of the product was 30,995 bbls. daily, an increase of 5,769 bbls. daily. Shipments, however, decreased from 2,110 bbls. to 156 bbls. Stocks decreased 937 bbls., or a total of 29,040 bbls., and at the end of the month were 2,434,759 bbls. These figures are reported by the California office of the Bureau of Mines.

CALIFORNIA STATISTICS
(Barrels daily average)

	Nat. gaso. inc. liq. pet. gas Mar.	Feb.
Supply		
Total production	31,752	32,076
Stock transfer (deliv.) receipts—net	(358)	(73)
Total	31,394	32,003
Deduct refinery requirements:		
Runs to stills	3,823	4,192
Blended	27,172	21,034
Total	30,995	25,226
Natural gasoline—net	125	106
Net current supply	524	6,883
Demand		
Domestic demand including bunkers	594	1,074
Shipments to Alaska and Hawaii	3	....
Rail and truck shipments to U. S. points outside five western states	1	....
Demand in domestic market area	598	....
Shipments: Pacific foreign inc. Canal zone	152	2,110
Total market demand	750	3,184
Losses (gains) unaccounted for—net	711	900
Total current demand	1,461	4,084
Surplus or (deficit)	(937)	2,799

PLANT OPERATIONS

Number of plants operating	93
Gas processed (M.C.F.)	2,251,137

EXPORTS SHOW INCREASE

Exports of natural gasoline increased in March over those of the previous month according to the Department of Commerce but remained low compared with an average over the past three years. The United Kingdom, Sweden and Canada shared about equally in the total of 121,401 bbls. shipped in March, the bulk of which was cleared through the port of Galveston, Tex. Following are the detailed shipments to the various countries and the customs houses through which these were cleared.

PURCHASES OF U. S. NATURAL GASOLINE
(Barrels)

	Mar.	Feb.
United Kingdom	39,984	53,374
Sweden	40,125	.....
Canada	41,097	23,915
China	195	.....
Total volume	121,401	77,289
Value	$210,178	$162,087

CUSTOMS DISTRICTS THROUGH WHICH CLEARED
(Barrels)

	Mar.	Feb.
St. Lawrence	6,889	2,214
Buffalo	10,503	4,934
Galveston	80,109	53,374
Montana and Idaho	2,454	980
Dakota	4,084	2,718
Michigan	17,362	13,069
Total	121,401	77,289

EAST TEXAS PLANT

The T. W. Murray Oil & Gas Co. is moving a 30,000,000-foot gasoline plant from Louisiana to its W. H. Arnold lease in the Levi Sparks Survey, southern Rusk County, in the East Texas Field, to process gas produced from its gasser which has an estimated potential of between 40,000,000 and 50,000,000 feet daily.

Panhandle Gasoline Production Growing in Proportion to United States Total

Despite a decline in the production of natural gasoline during March compared with February, stocks of that product increased from 41,122,000 gallons at the beginning of March to 42,918,000 gallons by the close of the month. The substantial part the Panhandle area has played in the matter of supplying gasoline was further strengthened in March through the operation of one more important new "dry gas" plant and the greater activities generally among plants in that area. Some increase in production is naturally the result of the longer month but the increase in the Panhandle is more than could be accounted for through this factor. Here the March production reached 20,500,000 gallons compared with 17,900,000 gallons in February. The Panhandle thus accounts for more than 50 per cent of the natural manufactured in the State.

East Texas showed a slightly lower yield during March but the production for the month was held to 2,500,000 gallons, the same as in February.

The only other change of note when comparing the operations over the two months is the decrease in the production from the Kettleman Hills Field. Here, despite the longer month, the March volume manufactured was 11,500,000 gallons, whereas in February the production was 11,600,000 gallons. The difference is not great and reflects the control exercised over production rather than any change in field conditions.

In reviewing the part natural gasoline has played in the motor fuel market for the first quarter of this year, the accompanying table showing the production of natural, straightrun and cracked gasoline shows that natural has retained its relative position. Approximately 750,000 gallons more natural were used this quarter than over the same period in 1933. Straightrun gasoline increased more than cracked which if continued over the balance of the year will mean that increasing volumes of natural will have to be blended.

PRODUCTION AND DISTRIBUTION OF NATURAL GASOLINE
(Thousands of barrels of 42 gallons)

	March, 1934 Total	March, 1934 Daily av.	Feb., 1934* Total	Feb., 1934* Daily av.	Jan.-Mar., 1934	Jan.-Mar., 1933
Production	3,019	97	2,795	100	8,838	8,190
Decrease in all stocks	.....	.....	117	4	.....	.....
Total	3,019	97	2,912	104	8,838	8,190
Blended at refineries	2,017	65	1,822	65	5,922	5,540
Blended at plants east of Calif.	23	1	20	1	65	23
Run through pipe lines in Calif.	119	4	117	4	375	328
Jobbers, exports, etc.	328	11	518	18	1,032	1,246
Increase in all stocks	140	4	.....	.....	236	344
Losses	392	12	435	16	1,208	709
Total	3,019	97	2,912	104	8,838	8,190

PRODUCTION OF MOTOR FUEL
(Thousands of barrels of 42 gallons)

	March, 1934 Total	March, 1934 Daily av.	Feb., 1934* Total	Feb., 1934* Daily av.	Jan.-Mar., 1934	Jan.-Mar., 1933
Refinery gasoline:						
Straightrun	16,749	540	15,740	562	49,072	44,910
Cracked	13,820	446	12,793	457	41,270	38,983
Natural gasoline:						
Production	3,019	97	2,795	100	8,838	8,190
Deduct losses	392	12	435	16	1,208	709
Benzol	159	5	132	5	421	271
Total motor fuel	33,355	1,075	31,025	1,108	98,393	91,646

*Revised.

PRODUCTION AND STOCKS BY FIELDS
(Thousands of gallons)

	Natural gasoline: Production Mar., 1934	Feb., 1934	Jan.-Mar., 1934	Jan.-Mar., 1933	Stocks end of month Mar., 1934	Feb., 1934	Blended motor fuel March, 1934: Natural gasoline used	Naphtha or other oils used	Stocks end of month
Appalachian	6,000	6,200	18,100	18,700	6,103	5,293	297	77	258
Ill. and Ky	800	800	2,400	2,300	627	504	.....	.....	.....
Oklahoma	31,500	28,900	91,800	84,000	19,486	18,605	31	19	21
Oklahoma City	9,300	8,600	26,900	20,100	4,877	4,489	.....	.....	.....
Osage County	3,800	3,500	11,000	9,900	3,999	4,302	.....	.....	5
Seminole	7,600	6,800	22,100	23,000	3,906	2,770	1	.....	.....
Rest of State	10,800	10,000	31,800	31,000	6,704	7,044	30	19	16
Kansas	2,200	2,300	6,900	6,200	819	564	24	13	20
Texas	36,300	*33,080	104,500	83,600	10,215	11,065	316	671	51
East Texas	2,500	2,500	7,300	3,900	279	233	260	642	10
North Texas	1,900	1,700	5,500	5,400	729	774	.....	.....	2
Panhandle	20,500	*17,900	57,500	40,000	5,887	6,663	21	29	7
West Central	7,500	6,900	22,100	20,000	2,318	2,545	35	.....	32
Rest of State	3,900	4,000	12,100	14,300	1,002	850	.....	.....	.....
Louisiana	2,500	3,500	10,500	10,200	907	672	49	.....	13
Arkansas	1,100	1,000	3,200	3,800	186	182	259	337	39
Rocky Mountain	4,800	4,600	14,100	14,100	1,186	1,243	5	13	5
California	46,600	37,100	119,700	121,100	3,389	2,994	.....	.....	.....
Huntington Beach	3,100	2,700	8,700	4,000	.....	.....	.....	.....	.....
Kettleman Hills	11,500	11,600	36,700	35,300	.....	.....	.....	.....	.....
Long Beach	6,400	5,400	17,600	20,400	.....	.....	.....	.....	.....
Santa Fe Springs	5,300	4,800	15,500	20,200	.....	.....	.....	.....	.....
Ventura Avenue	4,000	3,400	11,200	10,500	.....	.....	.....	.....	.....
Rest of State	10,300	9,200	29,900	30,700	.....	.....	.....	.....	.....
Total	126,800	*117,400	371,200	344,000	42,918	41,122	981	1,130	407
Daily average	4,090	4,190	4,120	3,820	.....	.....	32	36	.....
Total (thous. of barrels)	3,019	2,795	8,838	8,190	1,022	970	23	27	10
Daily average	97	100	98	91	.....	.....	1	1	.....

*Revised.

Shell to Build Plant on Louisiana Gulf Coast

HOUSTON, Tex., May 21.—Construction will be started by Shell Petroleum Corp. within the next few weeks on a natural gasoline absorption plant in the Iowa Field, located on the Calcasieu-Jefferson Davis Parish line, in the Louisiana Gulf Coast. The first unit of the plant will have a capacity of approximately 15,000,000 feet daily, gasoline content of which is about 1 gallon per 1,000 feet. This will be the first gasoline plant on the Louisiana coast and one of few on the entire Gulf Coast.

Equipment for the plant is being assembled from abandoned units of plants in other fields. Tentative location is on the E. O. Stafford lease in the south part of the field in the NW Section 18-9s-6w, on the Jefferson Davis Parish side of the line.

Shell has approximately 8,000,000 feet of gas available from 17 wells of its own at present and has contracted from Barnsdall Oil Co. for the latter's production which totals at present around 3,000,000 feet from four wells. Magnolia Petroleum Co., the other operator in the field, has approximately 4,000,000 feet of gas available from seven wells.

Due to efficient production methods practiced in the Iowa Field, the plant is assured a fairly constant supply of gas for a long period. The field also is still under development and additional wells are being completed to augment the volume of gas available.

Eleven New Directors Chosen by Association

Following the re-election of D. C. Williams of the Continental Oil Co. as president of the Natural Gasoline Association of America for the coming year, and the election of R. C. Wheeler of the General Petroleum Corp., W. E. Reardon of the Columbian Gasoline Corp. and John B. Atkins of the Parade Gasoline Co., as vice presidents, at the meeting which came to a close in Tulsa in the past week, the Following directors were chosen to serve a two-year term beginning this year: Amerada Petroleum Corp., Columbian Gasoline Corp., Hanlon-Buchanan, Inc., Kansas Gas & Gasoline Co., Parade Gasoline Co., Phillips Petroleum Co., Skelly Oil Co., Sinclair Prairie Oil Co., Standard Oil Co. of California, Warren Petroleum Co., L. H. Wentz—Oil Division.

Directors whose terms do not expire until 1935 are as follows: Carbide & Carbon Chemicals Corp., Continental Oil Co., J. E. Crosbie, Inc., Empire Oil & Refining Co., O. C. Field Gasoline Co., General Petroleum Corp., Lone Star Gasoline Co., Roeser & Pendleton, Inc., Shell Petroleum Corp., Texas Pacific Coal & Oil Co.

TURNER VALLEY PLANT

CALGARY, Alberta, May 19.—Initial shipments of equipment for the new gasoline absorption plant of Gas & Oil Products, Ltd., in the Turner Valley Field, have been made from Texas. The company was recently incorporated under an Alberta charter with head office at Calgary and with an authorized capitalization of $250,000.

The plant, to be erected on the Mercury lease in South Turner Valley, is to be in operation this summer, and will handle wet gas from the wells of independent operators.

REFINERY AND CRUDE PRICES

Quotations on refined products are for interstate or export movement except as otherwise noted

Quotations are exclusive of the Federal tax of 1 cent a gallon on gasoline and 4 cents on lubricating oils.

Refinery Gasolines

	May 22		May 15	
OKLAHOMA (Group 3)—				
U. S. Motor grades:				
Below 60 octane	.04⅛	.04¼	.04	.04⅛
60-64.9 octane	.04⅝	.04¾	.04½	.04¾
65-70 octane	.04⅞	.05	.04¾	.05
60-62 400 grades:				
Below 60 octane	.04¼	.04⅜	.04	.04¼
60-64.9 octane	.04¾	.04⅞	.04⅝	.04⅞
65-70 octane	.05	.05⅛	.04⅞	.05
64-66 375	.04¼	.04½	.04⅛	.04⅜
68-70 360	.04⅜	.04⅝	.04¼	.04½
NORTH TEXAS—				
U. S. Motor grades:				
Below 60 octane	.04	.04¼	.03⅞	.04
60-64.9 octane	.04⅝	.04⅞	.04½	.04¾
65-70 octane	.05	.05⅛	.05	.05⅛
60-62 400	.04⅛	.04¼	.04	.04¼
64-66 375	.04⅛	.04⅜	.04⅛	.04⅜
NORTH LOUISIANA (Ark., N. La. & Miss. del.)—				
68-70 360	.04¼	.04½	.04¼	.04½
U. S. Motor grades:				
Below 60 octane	.04⅝	.04⅞	.04½	.04⅝
60-64.9 octane	.05⅜	.05½	.05⅛	.05¼
65-70 octane	.05½	.05¾	.05⅜	.05½
60-62 400	.04⅝	.04⅞	.04½	.04⅝
ARKANSAS (Ark., N. La. & Miss. del.)—				
U. S. Motor grades:				
Below 60 octane	.04⅝	.04⅜	.04½	.04⅝
60-64.9 octane	.05⅜	.05½	.05⅛	.05¼
65-70 octane	.05½	.05¾	.05⅜	.05½
CHICAGO (based on Oklahoma Group 3)—				
U. S. Motor grades:				
Below 60 octane	.04¼	.04⅜	.04	.04¼
60-64.9 octane	.04⅞	.05	.04⅝	.04⅞
65-70 octane	.05⅛	.05¼	.04⅞	.05⅛
60-62 400	.04¼	.04½	.04⅛	.04¼
64-66 375	.04⅜	.04½	.04¼	.04⅜
68-70 360	.04½	.04⅝	.04⅜	.04⅝
Aviation fighting grade	.05¼	.05⅜	.05	.05¼
PENNSYLVANIA (inland refineries)—				
58-60 U. S. Motor:				
Below 60 octane	.05½	.05¾	.05½	.05¾
60-64.9 octane	.06¼	.06⅜	.06¼	.06⅜
65-70 octane	.06¾	.06⅞	.06⅜	.06⅞
68-70 350	.06¼	.06½	.06¼	.06½
CALIFORNIA (domestic movement)—				
54-58 U. S. Motor	.04¼	.05¼	.04¼	.05¼
58-60 400	.05	.06	.05	.06
EAST COAST—				
U. S. Motor, below 60 octane:				
New York	.06	.06¼	.05¾	.06
Baltimore	.06	.06¼	.05¾	.06
U. S. Motor, 60-64 octane:				
New York (Bayonne)	.06¼	.06½	.06	.06¼
Philadelphia	.06½	.06¾	.06¼	.06½
Boston	.0645	.0670	.06¼	.06½
Baltimore	.06¼	.06½	.06	
Charleston, S. C.	.06¼	.06½	.06	
U. S. Motor, 65 and above:				
New York (Bayonne)	.06½	.07	.06¼	.06½
Philadelphia	.06¾	.07	.06¼	.06½
Boston	.0670	.07	.06¼	.06½
Baltimore	.06½	.06¾	.06¼	.06½
Charleston, S. C.	.06½	.06¾	.06¼	.06½
GULF COAST (domestic)—				
U. S. Motor:				
Below 60 octane	.05⅝	.05⅞	.05½	.05¾
60-64.9 octane	.05⅞	.06	.05¾	.06
65 octane and higher	.06	.06¼	.06	.06¼

Naphthas

	May 22		May 15	
PENNSYLVANIA (inland refineries)—				
50-54 430-450 (blending)	.05¼		.05¼	
CHICAGO (based on Oklahoma Group 3)—				
50-52 450 (blending)	.04¼	.04½	.04¼	.04½
Cleaners' naphtha, 56-58 gr., 200 i.b.p.-330 e.p.	.06¾	.07	.06¾	.07
Lacquer diluent, 180 i.b.p.-250 e.p.	.07¾	.08	.07¾	.08
Lacquer diluent, 140 i.b.p.-200 e.p.	.08¾	.09	.08¾	.09
Rubber solvent, 68-70 gr., 100 i.b.p.-330 e.p.	.06¾	.07	.06¾	.07
Stoddard solvent, 300 i.b.p.-410 e.p., over 83° flash	.06¼	.06½	.06¼	.06½
Pet. thinner, 290-300 i.b.p.-415 e.p., over 83° flash	.06¼	.06½	.06¼	.06½
V.M.&P. naphtha, 56-58 gr., 190-200 i.b.p.-330 e.p.	.06¾	.07	.06¾	.07
Petroleum spirits	.05¾	.06	.05¾	.06

Natural Gasolines

	May 22		May 15	
OKLAHOMA (Group 3)—				
Grade 26-70	.02⅛		.02⅛	.02¼
Grade 18-55	.02⅞	.03	.02⅝	.02¾
Low vapor pressure grades:				
15 lb. v.p. (max.)	.03¼	.03⅝	.03	.03⅛
11 lb. v.p. (max.)	.03⅞	.04	.03⅞	.04
NORTH TEXAS—				
Grade 26-70	.02		.01⅞	.02
Grade 18-55	.02⅝	.02¾	.02½	.02⅝
Low vapor pressure grades:				
15 lb. v.p. (max.)	.03	.03⅛	.02⅞	.03
11 lb. v.p. (max.)	.03¾	.03⅞	.03¾	.03⅞
NORTH LOUISIANA—				
Grade 26-70	.02⅝		.02½	.02⅝
CALIFORNIA—				
75-78 375	.04¾	.05¼	.04¾	.05¼

Kerosenes

(All kerosenes water white)

	May 22		May 15	
OKLAHOMA (Group 3)—				
41-43	.03¼	.03½	.03½	.03⅝
42-44	.03⅝	.03¾	.03¾	.03⅞
NORTH TEXAS—				
40-41	.03¼	.03⅜	.03⅜	.03½
41-43	.03⅜	.03½	.03½	.03⅝
NORTH LOUISIANA (Ark., N. La. & Miss. del.)—				
41-43	.03¾		.03¾	
ARKANSAS (Ark., N. La. & Miss. del.)—				
41-43	.03¾		.03¾	
PENNSYLVANIA (inland refineries)—				
45	.04½	.04¾	.04⅜	.04⅝
46	.04⅞	.05	.04½	.04⅞
47	.05	.05¼	.04⅞	.05⅛
CHICAGO (based on Oklahoma Group 3)—				
41-43	.03½	.03¾	.03½	.03¾
42-44	.03¾	.04	.03¾	.04
CALIFORNIA (Pacific Coast consumption)—				
38-40 high burning test	.04½	.05	.04½	.05
NEW YORK (Bayonne, N. J.)—				
41-43	.05½	.05¾	.05¼	.05½
GULF COAST (domestic)—				
41-43	.04½	.04⅝	.04⅝	.04⅞

Petroleum Coke

Prices per ton f.o.b. refineries in Chicago area. (Refineries will absorb freight to 80 cents a ton)

	May 22		May 15	
Breeze (screenings)	5.00		5.00	
Pile run	5.00		5.00	
Direct from still	6.00		6.00	
Lump and egg	7.00	8.00	7.00	8.00

Furnace Oils and Tractor Fuels

(Zero cold test under 190° flash and good odor)

	May 22		May 15	
OKLAHOMA (Group 3)—				
32-36 straw	.02⅝	.02¾	.02⅝	.02¾
36-38 straw	.02⅝	.02¾	.02⅝	.02¾
38-40 straw	.02¾	.02⅞	.02¾	.02⅞
39-41 prime white	.02⅞	.03	.02⅞	.03
NORTH TEXAS—				
38-40 straw	.02¾	.03	.02¾	.03
NORTH LOUISIANA (Ark., N. La. & Miss. del.)—				
36-40 furnace oil	.03		.03	
ARKANSAS (Ark., N. La. & Miss. del.)—				
32-36 furnace oil	.02¾	.02⅞	.02¾	.02⅞
CHICAGO (based on Oklahoma Group 3)—				
32-36 straw	.02¾	.03	.02¾	.03
38-40 straw	.02¾	.03	.02¾	.03
38-40 prime white	.03	.03¼	.03	.03¼
NEW YORK (Bayonne, N. J.)—				
36-40 (No. 1 grade)	.05½	.06	.05¼	.05½
32-36 (No. 2 grade)	.04½	.05	.04½	.04⅝
21 industrial (No. 4 grade)	.04¼	.05	.04	.04¼

Gas Oil, Diesel Oil and Fuel Oil

(Gas oil per gallon; Diesel and fuel oils per barrel)

	May 22		May 15	
OKLAHOMA (Group 3)—				
32-36 gas oil cracking stock	.02⅜	.02½	.02⅛	.02⅜
U.G.I. gas oil	.02⅜	.02½	.02½	.02¼
32-36, zero to 15 gas oil	.02½	.02⅝	.02½	.02⅝
28-30, No. 3 burner oil	.95	1.00	.95	1.00
28-30, zero to 10 fuel oil	.90	.95	.90	.95
26-30, zero to 10 fuel oil	.85	.95	.85	.95
24-26 fuel oil	.72½	.75	.72½	.75
20-22 fuel oil	.67½	.70	.67½	.70
Below 16 fuel oil	.62½	.65	.62½	.65
NORTH TEXAS—				
32-36 gas oil, industrial	.02		.02	
22-26 fuel oil	.65	.67½	.65	.67½
Below 20 fuel oil	.55	.60	.55	.60
NORTH LOUISIANA (Ark., N. La. & Miss. del.)—				
32-36 gas oil, zero	.02¾	.03	.02¾	.03
14-16 fuel oil	.70	.75	.70	.75
ARKANSAS (Ark., N. La. & Miss. del.)—				
30-32 gas oil, zero	.02¾	.03	.02¾	.03
32-36 gas oil	.02½	.02¾	.02½	.02¾
14-16 fuel oil	.70	.75	.70	.75
CHICAGO (based on Oklahoma Group 3)—				
32-36 gas oil, industrial	.02¼	.02⅜	.02¼	.02⅜
28-30 zero to 10, fuel oil	.95	1.00	.95	1.00
26-28 zero to 10, fuel oil	.85	.90	.85	.90
22-26 zero to 10, fuel oil	.75	.80	.75	.80
18-22 zero to 10, fuel oil	.65	.70	.65	.67½
Below 18 fuel oil	.57½	.60	.55	.57½

Note: Fuel oils of more than 40 cold test generally 5 to 15 cents per barrel less in all these areas.

PENNSYLVANIA (inland refineries)—				
36-40	.04	.04⅛	.04	.04⅛
CALIFORNIA—				
30-34 gas oil per bbl.	1.00	1.10	1.00	1.10
27 plus Diesel	1.00	1.10	1.00	1.10
15-19 bunker (at tidewater)	.60	.70	.60	.70
15-19 (cargo lots)	.55	.60	.55	.60
15-19 (tank cars)	.50	.65	.50	.65
GULF COAST—				
28-30 gas oil	.03½	.03¾	.03½	.03¾
28-30 Diesel (bunkers)	1.80		1.80	
Bunker C (bulk cargoes)	.95	1.00	.95	1.00
Bunker C (bunkers)	1.15		1.15	
NEW YORK (Bayonne, N. J.)—				
28 plus, gas oil	.04¼	.04¾	.04¼	.04½
28-30 Diesel (lighterage 6½ cents per bbl.)	1.95		1.95	
28-30 Diesel (tank cars)	.04½	.04¾	.04½	
*Bunker C (to ocean-going ships in N. Y. harbor)	1.30		1.30	

*Lighterage charge 5 cents per barrel additional.

Neutral Oils

(Vis. at 100° F. except Pennsylvania, and color N.P.A.)

	May 22		May 15	
OKLAHOMA (Group 3)—				
Zero to 10 Cold Test:				
150-3	.09½		.09½	
180-3	.10¾		.10¾	
180-4	.10¼		.10¼	
200-3	.11¼		.11¼	
200-4	.10¾		.10¾	
240-3	.13¼		.13¼	
240-4	.12¾		.12¾	
280-3	.14¼		.14¼	
280-4	.13½		.13½	
300-3½	.14¾		.14¾	
400-4	.16¾		.16¾	
100-2 paraffin oil	.06½		.06½	
15-30 Cold Test:				
200-3	.10¼		.10¼	
200-4	.09¾		.09¾	
240-3	.12¼		.12¼	
240-4	.11¾		.11¾	
280-3	.13¼		.13¼	
280-4	.12½		.12½	
GULF COAST — Pale Oils:				
200-3	.07½		.07½	
300-3	.08	.08¼	.08	.08¼
500-3½	.09	.09¼	.09	.09¼
750-3½	.09½	.09¾	.09½	.09¾
1,200-3½	.10	.10¼	.10	.10¼
2,000-4	.10¼	.10½	.10¼	.10½
Red Oils:				
200-5-6	.06½		.06½	
300-5-6	.07	.07½	.07	.07½
500-5-6	.08	.08¼	.08	.08¼
750	.08½	.08¾	.08½	.08¾
1,200-5-6	.09	.09¼	.09	.09¼
CALIFORNIA— Pale Oils:				
100-2½-3	.23	.25	.23	.25
200-2½-3	.23	.25	.23	.25
300-3-3½	.23	.25	.23	.25
350-3-4	.23	.25	.23	.25
400-3-4	.23	.25	.23	.25
450-3-4	.23	.25	.23	.25
550-3-4	.23	.25	.23	.25
600-3-4	.23	.25	.23	.25
Red Oils:				
200-4-5	.23	.25	.23	.25
300-5-6	.23	.25	.23	.25
350-5-6	.23	.25	.23	.25

400-5-6	.23	.25	.23	.25
450-5-6	.23	.25	.23	.25
500-5-6	.23	.25	.23	.25
600-5-6½	.23	.25	.23	.25
700-6½ plus	.23	.25	.23	.25
750-6½ plus	.23	.25	.23	.25
900-6½ plus	.23	.25	.23	.25
PENNSYLVANIA—				
150 vis. at 70° F., 3 color; 400-405 flash:				
Zero pour test	.25½	.26	.25½	.26
10 pour test	.24½	.25	.24½	.25
15 pour test	.24	.24½	.24	.24½
25 pour test	.23	.23½	.23	.23½
180 vis. at 70° F., 3 color:				
25 pour test	.27	.27½	.27	.27½
200 vis. at 70° F., 3 color:				
Zero pour test	.32	.33½	.32	.33½
10 pour test	.30½	.32	.30½	.32
15 pour test	.30	.30½	.30	.30½
25 pour test	.29½	.30	.29½	.30

Bright and Steam Refined Stocks

OKLAHOMA (Group 3)—	May 22		May 15	
Bright Stocks:				
190-200 D	.27¼		.27¼	
150-160 D, 0-10	.24½		.24½	
150-160 D, 10-25	.24		.24	
150-160 25-40	.23½		.23½	
150-160 E	.23½		.23½	
Steam refined:				
630 light green (treated)	.15½		.15½	
600 light green (untreated)	.07½	.09	.07½	.09
600 dark green (untreated)	.05½	.08	.05½	.08
PENNSYLVANIA—				
Steam refined:				
600	.19	.19½	.19½	.20
650	.21	.21½	.22	.22½
600 Pennsylvania flash	.22	.22½	.23	.23½
630 flash	.26½	.27	.27½	.28
600 Warren E filtered	.21½	.22	.22½	.23
Bright Stocks (Pennsylvania grade, No. 8 color, 145-50 at 210; 540-550 flash):				
10 pour test	.30	.30½	.30	.30½
15 pour test	.29½	.30	.29	.29½
20 pour test	.29	.29½		
25 pour test	.28½	.29	.28½	.29

Wax and Petrolatum

(Prices per pound)

OKLAHOMA (Group 3)—	May 22		May 15	
124-126 white crude scale	.03⅝	.03¾	.03⅝	.03¾
PENNSYLVANIA—				
122-124	.0370		.0375	
124-126	.0375		.0380	
NEW YORK HARBOR—				
Wax (a.m.p.) in bags fully refined:				
120-122	.0420	.0430	.0420	.0430
123-125	.0440	.0460	.0435	.0460
125-127	.0445	.0470	.0445	.0470
128-130	.0480	.0495	.0480	.0495
130-132	.05	.0510	.05	.0510
133-135	.0545	.0570	.0545	.0570
135-137	.0570	.0595	.0570	.0595
124-126 crude scale	.03½	.03¾	.03½	.03¾
Petrolatum in barrels in carload lots:				
Dark green	.01⅞	.02	.01⅞	.02
Amber	.02⅞	.03	.02⅞	.03
Extra amber	.03⅛	.03¼	.03⅛	.03¼
Lily white	.06¾	.06⅞	.06¾	.06⅞
Snow white	.07¾	.07⅞	.07¾	.07⅞
Cream	.05⅝	.05¾	.05⅝	.05¾
CHICAGO (f.o.b. switching district)*—				
122-124 wax	.0490	.0500	.0465	.0475
125-127 wax	.0515	.0525	.0490	.0500
127-129 wax	.0530	.0540	.0505	.0515
130-132 wax	.0590	.0600	.0565	.0575
132-134 wax	.0615	.0625	.0590	.0600

*Cents per pound on carlot orders in burlap bags of 225 lbs. approx. Add 3° F. a.m.p.

Export Prices

GASOLINE

GULF COAST—	May 22		May 15	
U. S. Motor	.04¼	.04⅜	.04¼	
60-62 400	.04⅜		.04⅜	
61-63 390	.04½	.04⅝	.04⅜	.04½
64-66 375	.04⅝	.04¾	.04⅝	.04¾
LOS ANGELES, CALIF.—				
U. S. Motor grades:				
53-55 octane	.04	.04¼	.04	.04¼
55-65 octane	.04¼	.04½	.04¼	.04½
65-67 octane	.04½	.04¾	.04½	.04¾
67-69 octane	.04¾	.05	.04¾	.05
Above 69 octane	.05	.05¼	.05	.05¼
58-60 400 endpoint	.04¾	.05½	.04¾	.05½

KEROSENE

GULF COAST—				
41-43 prime white	.04⅛	.04¼	.04⅛	.04¼
41-43 water white	.04¼	.04⅜	.04¼	.04⅜
44 water white	.04⅜	.04½	.04⅜	.04½
LOS ANGELES, CALIF.—				
41-43 water white	.04¼	.04¾	.04¼	.04¾

LUBRICANTS

NEW YORK (f.a.s. in bbls.)—				
Cylinder Stocks:				
600 Warren E	.28	.29	.28	.29
600 S.R. unfiltered	.26	.26½	.26	.26½
650 S.R. unfiltered	.28	.28½	.28	.28½
600 flash S.R.	.29	.29½	.29	.29½
630 flash S.R.	.33½	.34	.33	.33½
Bright Stocks:				
S color	.36	.37½	.36	.38
6½ plus color, in dilution	.35		.35	.36

NEUTRAL OILS

200-3 color	.37	.38	.37	.38
150-3 color	.35	.36	.32	.33

PARFAFFIN WAX (Fully Refined)

NEW YORK (prices per pound)—				
120-122 a.m.p.	.0405	.04¼	.0405	.04¼
123-125 a.m.p.	.0430	.0455	.0430	.0455
125-127 a.m.p.	.0440	.0465	.0440	.0465
128-130 a.m.p.	.04¾	.0490	.04¾	.0490
130-132 a.m.p.	.0495	.0505	.0495	.0505
133-135 a.m.p.	.0540	.0565	.0540	.0565
135-137 a.m.p.	.0565	.0590	.0565	.0590

Crude Oil Gravity Table

Degrees gravity—	1 Oklahoma and Kansas	2 North Texas, Central Texas and East Central Texas	3 North Louisiana and Arkansas	4 Gray County, Texas	5 Carson, Hutchinson, and Moore Counties, Texas	6 Conroe, Texas	7 Salt Creek, Wyo.	8 Gulf Coast, Texas, and Louisiana	9 Gulf Coast, Texas, and Louisiana	10 Cotton Valley, Louisiana
Below 20	....	....	....	....	....	....	....	$.82	$.82	....
20-20.9	....	....	....	....	....	....	....	.84	.84	....
21-21.9	....	....	....	....	....	....	....	.86	.86	....
22-22.9	....	....	....	....	....	....	....	.88	.88	....
23-23.9	....	....	....	....	....	....	....	.90	.90	....
24-24.9	....	....	....	....	....	....	....	.92	.92	....
Below 25	*$.76	....	....	....	....	....	....	....	....	$.70
25-25.9	*.78	....	....	....	....	....	....	.94	.94	.72
26-26.9	*.80	....	....	....	....	....	....	.96	.96	.74
27-27.9	*.82	....	....	....	....	....	....	.98	.98	.76
28-28.9	*.84	....	....	....	....	....	....	1.00	1.00	.78
Below 29	.84	$.79	$.79	....	....	....	$.84	....	....	.80
29-29.9	.86	.81	.81	....	....	....	.86	1.02	1.02	.80
30-30.9	.88	.83	.83	....	....	....	.88	1.04	1.04	.82
31-31.9	.90	.85	.85	....	....	....	.90	1.06	1.05	.84
32-32.9	.92	.87	.87	....	....	....	.92	1.08	1.06	.86
33-33.9	.94	.89	.89	....	....	....	.94	1.10	1.07	.88
34-34.9	.96	.91	.91	....	....	....	.96	1.12	1.08	.90
Below 35	....	....	....	$.79	$.69	....	....	....	....	....
35-35.9	.98	.93	.93	.81	.71	$1.09	.98	1.12	1.09	.92
36-36.9	1.00	.95	.95	.83	.73	1.11	1.00	1.12	1.10	.94
37-37.9	1.02	.97	.97	.85	.75	1.13	1.02	1.12	1.11	.96
38-38.9	1.04	.99	.99	.87	.77	1.15	1.04	1.12	1.12	.98
39-39.9	1.06	1.01	1.01	.89	.79	1.17	1.06	1.12	1.13	1.00
40 and over	1.08	1.03	1.03	.91	.81	1.19	1.08	1.12	1.14	1.02

*The following companies purchasing crude oil in Kansas or Oklahoma, or both, begin their price schedules: Below 25 degrees, 76 cents; 25-25.9 degrees, 78 cents, with 2 cents added for each degree upward to 40 and over at $1.08: Carter Oil Co., Magnolia Petroleum Co., Pure Oil Co., Rock Island Refining Co., Shell Petroleum Corp., Sinclair Prairie Oil Marketing Co., Skelly Oil Co., and Wilcox Oil & Gas Co. All others begin their schedule at below 26 degrees, 84 cents, excepting Philtex Oil Co., which begins with below 31 degrees at 88 cents.

Column 1—Effective September 29, Texas Co. in Oklahoma; Stanolind Crude Oil Purchasing Co. in Kansas and Oklahoma; Anderson & Prichard, Inc., in Oklahoma; Bell Oil & Gas Co. in Oklahoma; Carter Oil Co. in Oklahoma and Kansas; Deep Rock Oil Co. in Oklahoma; Derby Oil Co. in Kansas; Globe Refining Co. in Oklahoma; Golden Rule Refining Co. in Kansas; Gypsy Oil Co. in Oklahoma and Kansas; Kanotex Refining Co. in Kansas; Magnolia Petroleum Co. in Oklahoma; Mid-Continent Petroleum Corp. in Oklahoma; National Refining Co. in Kansas and Oklahoma; Shell Petroleum Corp. in Kansas and Oklahoma; Sinclair Prairie Oil Marketing Co. in Kansas and Oklahoma; Texas Co. in Oklahoma; Tide Water Oil Co. in Oklahoma; Vickers Refining Co. in Kansas; Continental Oil Co. in Kansas and Oklahoma; Empire Pipe Line Co. in Oklahoma and Kansas; Philtex Oil Co. in Kansas and Oklahoma; Pure Oil Co. in Oklahoma; Skelly Oil Co. in Kansas. Effective September 29, by White Eagle Oil Corp. in Kansas; on October 1 by Barnsdall Refineries, Inc., in Oklahoma.

Column 2—Effective September 29, by Texas Co., Stanolind Crude Oil Purchasing Co., Humble Oil & Refining Co., Sinclair Prairie Oil Marketing Co., Gulf Pipe Line Co., Magnolia Petroleum Co., Bell Oil & Gas Co., Continental Oil Co. Effective September 29, in the Van Pool, Van Zandt County, Pure Oil Co. posted below 29 degrees, 84 cents, with 2 cents added for each degree up to 40 and over at $1.08.

Column 3—Effective September 29, by Texas Co., Magnolia Petroleum Co., Gulf Refining Co. Effective December 22, Stanolind Oil & Gas Co. in Pine Island, Louisiana, and Marion County, Texas, posted below 29 degrees, 79 cents, with 2 cents added for each degree up to 40 and over at $1.03. Effective March 17, 1934, by Standard Oil Co. of Louisiana and Louisiana Oil Refining Co. Starting with below 25 degrees, 71 cents, adding 2 cents for each degree upward to 40 and over at $1.03.

Column 4—Effective September 29, by Texas Co., Humble Oil & Refining Co., Magnolia Petroleum Co., Sinclair Prairie Oil Marketing Co., and H. F. Wilcox Oil & Gas Co. On same day Philtex Oil Co. posted below 31 degrees, 71 cents, with 2 cents added for each degree up to 40 and over at 91 cents.

Column 5—Effective September 29, by Texas Co., Humble Oil & Refining Co., Gulf Pipe Line Co., Magnolia Petroleum Co., Wilcox Oil & Gas Co., Continental Oil Co. On same day, Philtex Oil Co. posted below 31 degrees, 61 cents, with 2 cents added for each degree upward to 40 and over at 81 cents.

Column 6—Effective September 29, by Humble Oil & Refining Co. and Tide Water Oil Co., and on September 30, by Texas Co. which on September 29 had posted a schedule of $1.07 to $1.13 with a 1-cent spread on each degree.

Column 7—Effective September 29 by Stanolind Oil & Gas Co.

Column 8—Effective September 29, by Humble Oil & Refining Co., Gulf Pipe Line Co., Shell Petroleum Corp., Pure Oil Co., Sinclair Prairie Oil Marketing Co. On October 2, Magnolia Petroleum Co. posted Lockport, Louisiana: 26-26.9 degrees, 94 cents, with 2 cents added for each degree upward to 34 and over at $1.12, and in Cameron Meadows and Iowa, Louisiana: Below 20 degrees, 72 cents with 2 cents added for each degree up to 34 and over at $1.02. These prices were 2 cents higher on each degree than Magnolia prices posted on September 29. Effective September 29, Shell Petroleum Corp. posted in Iowa, Louisiana, district: Below 20 degrees, 70 cents, with 2 cents added for each degree upward to 34 degrees and over at $1; and in Black Bayou and White Castle, Louisiana: Below 20 degrees, 80 cents, with 2 cents added for each degree upward to 34 degrees and over at $1.10.

Column 9—Effective September 30, Texas Co. (On September 29, Texas Co. had posted a schedule 2 cents lower on each degree, but changed it on September 30.)

Column 10—Effective September 29, by Louisiana Oil Refining Co.

(California Crude Oil Prices on Page 46)

Crude Oil Prices

Oklahoma, Kansas, North Central and East Central Texas

East Texas	$1.00
Stratman, Kans. (Sept. 29, 1933)	1.03
Corsicana (heavy) (June 17, 1933)*	.30
Other fields	(See gravity table)

Note—In East Texas, effective September 29, 1933, by Texas Co., Stanolind Crude Oil Purchasing Co., Humble Oil & Refining Co., Shell Petroleum Corp., Gulf Pipe Line Co., Tide Water Oil Co., Sinclair Prairie Oil Marketing Co., Magnolia Petroleum Co., Sun Oil Co., Panola Pipe Line Co., and Empire Oil & Refining Co.
*Magnolia Petroleum Co.

West Texas

Crane, Upton, Crockett, Howard, Glasscock, Mitchell (Sept. 29, 1933)	$ .70
Ector, Winkler and Pecos Counties and Lea County, New Mexico (Sept. 29, 1933)	.75
Pecos County, Yates shallow pool (Sept. 29, 1933)*	.65
Jones and Fisher Counties.	See gravity table.

Note—Effective September 29, 1933, by Humble Oil & Refining Co., Texas Co., Gulf Pipe Line Co., Shell Petroleum Corp., Magnolia Petroleum Co., and by Stanolind Oil & Gas Co. in Winkler County, Texas.
*Shell Petroleum Corp.

Gulf Coast

Grade A and Grade B specifications discontinued by leading buyers ..... (See gravity table)

Tomball (see note)*	$1.15
Livingston (Sept. 29, 1933)†	1.00
Cleveland (Jan. 11, 1934)	1.00
Greta (Sept. 29, 1933)	.85
Refugio, light	(See gravity table)
Refugio, heavy (Sept. 29, 1933)‡	.85
Markham and High Island	(See Gulf Coast gravity table)
Conroe	(See Conroe gravity table)

Note—Tomball, effective September 29, by Humble Oil & Refining Co., and October 2 by Magnolia Petroleum Co., and November 10 by Stanolind Oil & Gas Co.
*Greta posted by Texas Co. †Shell Petroleum Corp. ‡Refugio heavy, by Humble Oil & Refining Co. Cleveland (Liberty County), posted by Magnolia Petroleum Co.

South Central and Southwest Texas

(See note below table)

Darst Creek	$.87
Mirando	.80
Luling (Sept. 29, 1933)	.75
Pettus	1.05
Salt Flat	.87
Lytton Springs (Sept. 29, 1933)	.95
Duval County (Sept. 29, 1933)	.80
Saxet	.85

Note—Effective on September 29 by Humble Oil & Refining Co., in Darst Creek, Mirando, Pettus, Salt Flat and Saxet. Effective September 29 in Darst Creek by Gulf Pipe Line Co. and Texas Co. Effective October 2 by Magnolia Petroleum Co. Effective in Pettus and Salt Flat on September 29 by Humble Oil & Refining Co. and Gulf Pipe Line Co. Luling and Lytton Springs by Magnolia Petroleum Co. Duval County by Texas Co. Saxet, effective September 29, by Humble Oil & Refining Co. and Texas Co.

(Continued on Page 46)

NEWS FOR PETROLEUM REFINERS

Cities Service Granted Stay in Richfield Case

Cities Service Co. was granted the right to appeal the decision of the Federal Court to permit the reorganization committee to proceed under the terms for acquisition by the Standard Oil Co. of California.

In asking for an appeal Cities Service did not request that the order of the court be stayed. This means the order will continue in effect until the case has been carried to the U. S. Circuit Court of Appeals.

The appeal is due to come up next October at which time the circuit court reconvenes. What course Standard Oil will take as the result of Cities Service forthcoming appeal was not indicated, as under the terms of the Standard plan the sale of Richfield properties should be completed by June 30.

Harry F. Sinclair, chairman of the executive committee of Consolidated Oil, remarked that he had been approached by Cities Service on the subject of an alliance between his company and Cities Service for a combination bid for Richfield properties.

Charles A. Frueauff, New York attorney for Cities Service Co., who is now in Los Angeles, made the following statement:

"Cities Service Co. has in the past been approached by both Mr. Sinclair from the Consolidated Oil Co., and representatives of the Standard Oil Co. of California in regard to joining in a reorganization of Richfield Oil Co.

"However, neither Consolidated nor Standard seems able to agree on the larger value of the Richfield properties which Cities Service believes to exist."

OLD DUTCH REMODELING

The Old Dutch Refining Co., of Muskegon, Mich., is installing a new 85-foot bubble tower to replace an original tower erected in the fall of 1929.

The new tower is being constructed by the Muskegon Boiler Works and will be completed and ready for operations on or about June 15 at a cost of about $8,000, it was announced by John Borden, president and general manager of the refining company.

The Old Dutch recently has increased its distribution facilities by purchase of a major interest in a Detroit concern operating about 50 service stations and by the establishment of distributors and retail outlets for its gasoline in Muskegon and Grand Rapids.

The Suburban Oil Co., of Muskegon, and the McCracken Oil Co., of Grand Rapids, are now western Michigan distributors of Old Dutch gasoline and other petroleum products. These companies have a number of retail outlets in each city.

B. P. CRITTENDEN ALLOCATOR

B. P. Crittenden, vice president of Oils, Inc., Overton and Shreveport, La., has been elected allocator for the inland Texas refining district, No. 5, subject to approval by the P. and C. committee and Oil Administrator Ickes.

A committee of 12 was also selected by the refiners who met in Fort Worth on May 18. These members include Dr. E. R. Lederer, Texas Pacific Coal & Oil Co.; L. W. Barbour, Sinclair Refining Co.; R. G. McIntyre, Paso-Tex Refining Co.; R. B. Jones, Panhandle Refining Co.; W. D. Richardson, Cosden Oil Co.; K. W. Bartlett, Misco Refining Co., Inc.; J. M. Sands, Phillips Petroleum Co.; L. S. Sinclair, Magnolia Petroleum Co., and Chester Slimp, Pioneer Oil & Refining Co.

Production of Gasoline Under National Allocator During June for First Time

In June, refinery gasoline production will be guided by a national co-ordinator for the first time. Howard Bennette, holding that office, has sent out the quotas for June and under the authority granted through article 4 of the revised oil code has issued instructions and is calling for suggestions so that a routine of control may be effected which will prove both equitable and profitable to the industry. For June, the following schedule of gasoline production has been approved:

Refinery Gasoline Production Allocation for June, 1934

"That the following gasoline production at refineries (including straightrun, cracked, and the natural gasoline blended in shipments) in each of the various refining districts for the month of June, 1934, be approved as a maximum:

District	Amount (42-Gal. Bbls.)
East Coast	5,720,000
Appalachian	1,550,000
Indiana-Illinois-Kentucky	5,365,000
Oklahoma-Kansas-Missouri	4,765,000
Texas (a) Inland Texas	2,410,000
(b) Texas Gulf Coast	6,300,000
Louisiana-Arkansas	
(a) La. Gulf Coast inc. Ala.	1,300,000
(b) N. La.-Ark. inc. Miss.	840,000
Rocky Mountain	700,000
California	5,650,000
Total United States	34,600,000

"Each refining company shall conduct and limit its operations so that production of gasoline will not exceed what is determined by the allocators or allocating agencies, appointed by the Planning and Coordination Committee. Each refining company shall, within four days after receipt of this order, inform the Regional Allocating Agency as to its contemplated production and sales of gasoline during June, and its contemplated stocks of gasoline at the end of said month, submitting such other pertinent data as is deemed necessary.

"Each district allocator or agency shall, within seven days from receipt of this order, equitably allocate the district quota among all of the operating refineries in the district sending a complete statement of each allocation to the national co-ordinator.

"Changes in inventory of both finished and unfinished gasoline as between June 1 and July 1 shall be taken into consideration."

In the letter written by Mr. Bennette accompanying the June allocations, he said in part:

"From a reading of Paragraph 2 it will be clear that you should direct the required information to your district allocator so that it will reach him within four days from receipt of this order. If there is no allocator for your district, you will please send these figures to the secretary of your Regional Refinery Committee, who will see that they are made available to whatever agency may be set up. The purpose of getting these figures into the hands of the allocating agency within four days is to give that agency an opportunity to familiarize itself with these reports individually and collectively and to make a proper study of them before individual allocations are attempted.

"At the next meeting of your Regional Committee you will consider the type and personnel of the agency which will sit in joint session with your district allocator, if one is appointed, for the purpose of making individual allocations. Your committee should be prepared to pass a resolution and forward it to the Planning and Coordination Committee so that these appointments may be made without delay.

"Within seven days from receipt of this order the district allocator and the allocating agency, in joint session, or where no district allocator has been appointed, then the allocating agency, shall make allocations to individual refiners. In this connection we should like to point out that it is the intent and purpose of the code that the method of making allocations shall be one that will provide, to the maximum limits of practical circumstances, a full consideration of the individual situation of each refinery, his relationship to the district within which he operates, and his interests in markets as a whole.

"The essential thing is that a technique of allocations shall be evolved which will be equitable and which will not unduly affect the ability of any company to increase, shift or otherwise control the movement of his product to market within the limitations that are necessarily involved.

"In formulating your figures and in negotiating for your allocation, you are urged to approach the problem in an attitude of consideration and helpfulness, and any suggestions you may have, bearing upon any method of procedure in making allocations will be of great assistance to your local committee or the district allocator.

"In the event you are unable to accept the allocation given you by the district allocator, and the agency, you are entitled to appeal to the board of review. The judgment of this board is subject to review by the Planning nad Coordination Committee, and finally you have the right of appeal to the Administrator. It is essential that appeals be made promptly. Therefore you are strongly urged to perfect your appeal to the board of review within five days after receiving your allocation. If this rule is followed, there should be no delay in receiving a determination from that source, and you may be sure that it will be the practice of the board of review to reach prompt conclusions and notify you immediately. You may appear before the board of review in person or through any representative whom you may select, or you may make your appeal by mail. Correspondence to the board of review will be received at the Investment Building, Washington, D. C."

R. J. FLOOD CHAIRMAN

R. J. Flood of the Gulf Refining Co., Pittsburgh, Pa., has been appointed chairman of the petroleum group meeting of the Association of National Advertisers, Inc., according to a recent announcement from that organization. The twenty-fifth semiannual meeting of the association will be held at the Edgewater Beach Hotel, Chicago, on June 4, 5 and 6. At that time Mr. Flood will preside over a special group meeting of petroleum marketing executives.

IRVING OIL DIRECTORATE

HALIFAX, Nova Scotia, May 19.—The Irving Oil Co., operating as a distributing organization in the maritime provinces, has taken steps to decrease the number of its directors to five.

Indiana Standard Advances Whiting Plant Executives

Dr. O. E. Bransky, manager of the Whiting refinery of the Standard Oil Co. (Indiana), has been appointed assistant general manager of manufacturing at the Chicago office, according to an announcement by Edward G. Seubert, president. Dr. E. J. Shaeffer, general superintendent of the refinery, succeeds Doctor Bransky as manager at Whiting.

Other changes in the Whiting executive personnel, includes the following: F. D. Rexwinkle, assistant general superintendent, succeeds Doctor Shaeffer as general superintendent, and Dr. R. T. Myrick, head of the light oils department, assumes the position vacated by Mr. Rexwinkle as assistant general superintendent.

A leader in Whiting civic affairs, Doctor Bransky has been a resident of Whiting since 1910, when he joined the Standard Oil after receiving his Ph.D. from Johns Hopkins University. After four years working as a research chemist, he assumed duties in the medicinal white oil department, and later served as head of the paraffin department. In 1931 he was promoted to the position of manager of the refinery.

The new manager of the refinery, Doctor Shaeffer, also is active in community affairs. Whiting has been his home since 1915, when he joined Standard as a chemist. In 1913 he received his Ph.D. from Johns Hopkins, after which he served as Carnegie research fellow until going to Whiting. After several years as superintendent of the light oils department, he became in 1927 assistant general superintendent of the refinery, and in 1931 was made general superintendent, the position he has just vacated to become manager.

Mr. Rexwinkle, who succeeds Doctor Shaeffer as general superintendent, went to the Whiting refinery in 1916 as draftsman, and is active in the community's civic affairs. In 1921 he became assistant superintendent of the paraffin department, four years later was made superintendent of that department, and in 1929 was promoted to assistant general superintendent.

Doctor Myrick also joined Standard at Whiting in 1916, working as a chemist in the laboratory until 1920, when he became assistant superintendent of the acid works. He later worked in the finishing department and then in the tower and crude stills, of which he was made foreman in 1927. Two years later he was promoted to superintendent of the light oils department, the position he has just left to become assistant general superintendent.

TAYLOR TO BUILD ON GULF

G. L. Rowsey, president of the Taylor Refining Co., announces the building of a 1,000-bbl. refinery at Corpus Christi, Tex., by the company, and the design provides for increasing the capacity of the plant to 3,000 bbls. daily within the near future. Crude will be supplied by the local field.

START GUTHRIE PLANT

Initial runs after reconditioning are being made at the Guthrie Refining Co. plant, north of the county seat of Logan County. Crude is being obtained from the Anderson-Kerr No. 1-A Hull, discovery well of the East Lovell Field, delivery being made by trucks. L. Grigsby is superintendent of the plant, which was constructed a number of years ago and operated under the name of the Garber Refining Co.

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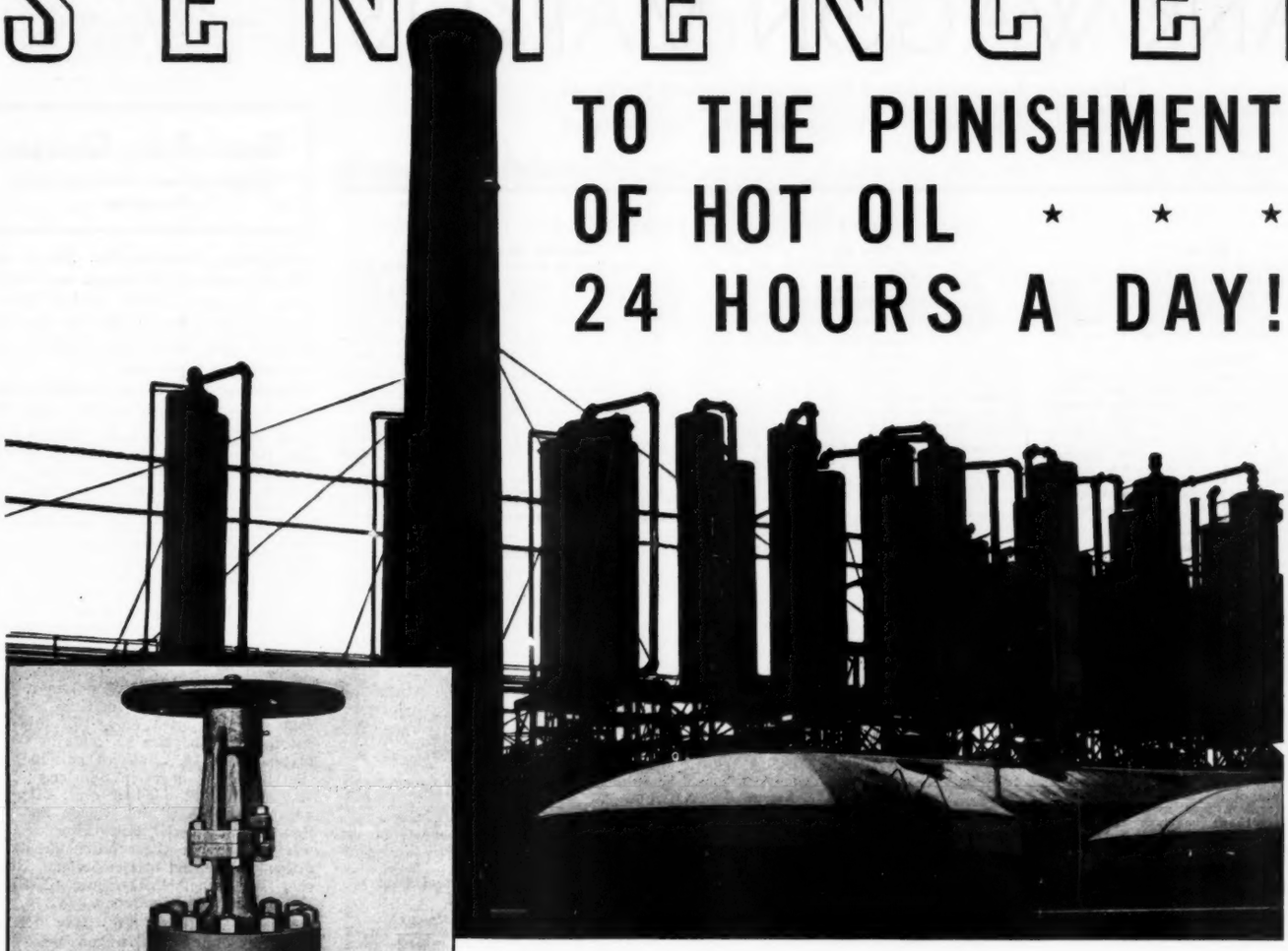

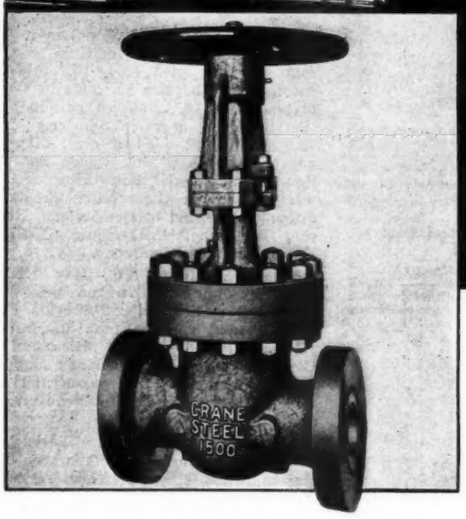

★ Crane Cast Steel Series 90 Gate Valve is made for 900 pounds steam and hot oil working pressure at temperatures not exceeding 750 degrees Fahrenheit.

Valve metals must have unusual qualities . . . *super* qualities! They must encounter high pressures and higher temperatures not once but 24 hours a day! Crane Co. set about to develop a valve metal that would have *strength* above all else . . . a metal with *ductility* that would be proof against brittleness and shock . . . a metal for valve stems which would undergo severe twisting or torsional stress . . . a metal that could *take its sentence* to hard labor!

The answer is found in Crane Cast Steel for Valve Castings as well as alloy castings . . . made in a foundry equipped with modern electric furnaces and facilities . . . uniformity maintained by laboratory control of every process . . . assembled under expert supervision. Crane Steel Valves and Fittings are recommended for punishing duty in oil refineries. Crane knowledge of metals and rigid testing has given you these superior valves . . . a valve metal with *super* qualities!

Your visit to A Century of Progress Exposition should include a trip through the new Crane building.

CRANE

CRANE CO., GENERAL OFFICES: 836 SOUTH MICHIGAN AVENUE, CHICAGO, ILL. • NEW YORK: 23 WEST 44TH STREET

Branches and Sales Offices in One Hundred and Sixty Cities

VALVES, FITTINGS, FABRICATED PIPE, PUMPS, HEATING AND PLUMBING MATERIAL

TANK WAGON MARKETS

Quotations for gasoline and kerosene in United States, as furnished by the larger marketing concerns, include taxes

May 22, 1934

Taxes

The gasoline quotations given in the following tables include the 1 cent Federal tax, as well as state, county and city taxes. The gasoline quoted is the regular or standard grade. In most marketing areas a third grade and a premium grade are also available.

Discounts

Under the standard form of commercial consumer contract which went into effect March 1, 1934, save in California, Oregon, Washington, Arizona and Nevada, a discount of 1 cent a gallon off tank wagon, or 3 cents a gallon off retail prices, is permitted for purchases running between 3,000 and 10,000 gallons a month, and 2 cents a gallon off tank wagon, or 4 cents a gallon off retail prices, for purchases in lots of more than 10,000 gallons a month. The minimum delivery is 25 gallons.

Rocky Mountain District

CONTINENTAL OIL CO.

	Gasoline: Tank wagon	Service station	Incl'ds tax of	Kero. tank wagon
Denver, Colo.	16.0	17.0	6.0	10.0
Pueblo	16.0	18.0	6.0	13.0
Grand Junction	21.5	23.5	6.0	15.0
Casper, Wyo.	18.0	20.0	5.0	11.5
Cheyenne	18.0	20.0	5.0	13.0
Butte, Mont.	21.0	23.0	5.0	17.5
Billings	21.0	23.0	6.0	16.5
Helena	22.5	24.5	6.0	17.5
Great Falls	21.5	23.5	6.0	17.5
Salt Lake, Utah	21.0	23.0	5.0	16.0
Boise, Idaho	22.0	24.0	6.0	18.0
Twin Falls	22.0	24.0	6.0	18.0
Albu'que, N. M.	19.5	21.5	*7.0	13.0

*One-cent city tax.

Effective March 1, 1934, discount to dealers with or without contract throughout Continental territory: Undivided dealer discount off service station price, 4 cents; divided dealer accounts, 3½ cents.

Standard Oil Co. (Indiana)

	Gasoline: Tank wagon	Service station	Incl'ds tax of	Kero. tank wagon
Chicago	13.8	15.8	4.0	9.7
Decatur, Ill.	16.0	18.0	4.0	10.2
E. St. Louis	16.0	14.5	4.0	9.5
Joliet	14.2	16.2	4.0	10.2
Peoria	16.7	16.7	4.0	10.2
Quincy	16.6	14.5	4.0	10.0
Davenport, Ia.	16.6	15.5	4.0	10.1
Des Moines	16.6	18.6	4.0	10.1
Mason City	16.6	17.6	4.0	9.3
Sioux City	12.9	12.9	4.0	9.7
Duluth, Minn.	17.2	19.2	4.0	10.4
Mankato	16.8	16.8	4.0	10.3
Minneapolis	15.4	17.4	4.0	10.4
LaCrosse, Wis.	18.3	20.3	4.8	10.8
Green Bay	17.7	19.7	5.0	10.2
Milwaukee	15.8	15.8	5.0	9.7
Madison	17.4	19.4	5.0	9.9
Detroit, Mich.	17.0	19.0	4.0	10.5
Grand Rapids	16.7	18.7	4.0	10.2
Saginaw	17.0	19.0	4.0	10.5
Evansville, Ind.	17.7	19.7	5.0	10.0
Indianapolis	17.8	19.8	5.0	10.3
South Bend	18.2	20.2	5.0	10.5
Fargo, N. Dak.	17.0	19.0	4.0	12.1
Huron, S. Dak.	18.8	20.8	5.0	11.4
Sioux Falls	18.4	20.4	5.0	10.9
Kans. C., Mo.*	15.6	15.0	4.0	9.2
Springfield	15.1	17.1	3.5	9.1
St. Louis	15.5	14.5	3.5	8.7
St. Joseph*	15.3	15.0	4.0	8.8
Wichita, Kans.	14.6	16.6	4.0	10.2
Bartlesville, Ok.	16.0	18.5	5.0	10.5

*State tax 2 cents, 1-cent city tax and 1-cent Federal tax.

Discounts to dealers, effective March 1, 1934: Undivided accounts, 4 cents a gallon on Red Crown Ethyl and Standard Red Crown, divided accounts, 3½ cents a gallon on Red Crown Ethyl and Standard Red Crown.

Stanolax Furnace Oil in Chicago

Effective May 16, 1934, f.o.b. Chicago, tank wagon prices: No. 1 (36-40 lt. stw. zero), under 150 gallons, 8¼ cents; No. 2 (30-34 stw zero), under 150 gallons, 7¾ cents; No. 3 (22-26 zero), under 150 gallons, 7½ cents; No. 4 (12-16 zero), under 400 gallons, 6 cents; viscosity of No. 4, 90-115 at 100° F.; No. 5, under 400 gallons, 5¾ cents. For deliveries above stated quantities deduct 1 cent.

Naphtha

	Tank wagon*
Oleum spirits	16.9
V.M.&P. naphtha	15.0
Cleaners' naphtha	15.0
Stanisol	15.0

*Prices include 3-cent Illinois tax, but not 1-cent Federal tax.

Prices f.o.b. Chicago, September 13, 1933.

Each of above prices subject to discount of 1 cent per gallon for 150-gallon lots if covered by contracts.

Southern District

STANDARD OIL CO. (KENTUCKY)

	Gasoline: Tank wagon	Service station	Incl'ds tax of	Kero. tank wagon
Atlanta, Ga.	20 0	22 0	7.0	14 5
Augusta	20 0	22 0	7.0	14.5
Macon	20.0	22.0	7.0	14.5
Savannah	20.0	22 0	7.0	14 0
Birm'ham, Ala.	21.5	23 5	8 0	12.0
Mobile	20 5	22.5	8 0	12.0
Montgomery	22 5	24 5	8.0	15.0
Jackson, Miss.	19.5	21.5	7.0	14.0
Vicksburg	20.0	22.0	7.0	14.0
Jack'ville, Fla.	20.0	22.0	8 0	11 5
Miami	20.0	22 0	8 0	13.5
Pensacola	18.0	20.0	8.0	13 5
Tampa	20.0	22.0	8 0	12 5
Lexington, Ky.	18.5	20.5	6.0	11.5
Covington	17 5	19 5	6.0	11 5
Louisville	18.0	20.0	6 0	11 5
Paducah	14.5	16.5	6.0	11.0

In addition to the state tax of 4 cents on gasoline, Montgomery has city and county tax of 2 cents on gasoline and one-half cent on kerosene. Kerosene prices in Georgia and Mississippi include 1 cent state tax; in Alabama, an inspection fee of one-half cent on kerosene and one-fortieth cent on gasoline; in Florida an inspection fee of one-eighth cent on kerosene and gasoline. To Pensacola, Mobile and Birmingham state taxes on gasoline add 1 cent city tax.

Southwestern District

MAGNOLIA PETROLEUM CO.

	Gasoline: Tank wagon	Service station	Incl'ds tax of	Kero. tank wagon
Dallas, Tex.	17 0	19.0	5.0	6.0
Fort Worth	17.0	19 0	5.0	7.0
Houston	16.0	18.0	5.0	8.5
San Antonio	17.0	19 0	5.0	8.5
El Paso	18.0	20.0	5.0	11.0
Muskogee, Ok.	16 0	18.0	5.0	7.5
Okla. City	16 0	18.0	5.0	8.5
Tulsa	16.0	18.0	5.0	8.5
Ft. Smith, Ark.	16.1	18.1	5.0	8.0
Little Rock	18.6	20.6	7.5	9.0
Texarkana	17.0	19 0	5 0	7.0

Atlantic Coast District

STANDARD OIL CO. OF NEW JERSEY

	Gasoline: Tank wagon	Service station	Incl'ds tax of	Kero. tank wagon
Atl'tic City, N.J.	18.5	18.0	4.0	10.0
Newark	17.8	17.3	4.0	9.5
Annapolis, Md.	19.1	18.6	5.0	10 0
Baltimore	18.6	18.1	5.0	9.5
Cumberland	20.1	18.5	5.0	12.7
Wash'g'n, D. C.	16.8	16.3	3.0	11.5
Danville, Va.	21 2	20.7	6.0	12.9
Norfolk	19 7	19.2	6.0	11.3
Petersburg	20.5	20 0	6.0	11.4
Richmond	20.1	15.6	6.0	11.7
Roanoke	21.3	15.4	6.0	12.9
Charls'n, W.Va.	19.5	19.0	5.0	12.6
Parkersburg	18 8	15.9	5.0	11.2
Wheeling	19.5	19.0	5 0	12.2
Charlotte, N. C.	22.9	22.4	7.0	13.5
Hickory	23.2	21.0	7 0	13.7
Mt. Airy	23.2	22.7	7.0	13.8
Raleigh	22.7	21.0	7.0	13.3
Sal'sbury	23.0	22.5	7.0	13.6
Charleston, S.C.	20.7	20.2	7.0	11.3
Columbia	22.5	22.0	7.0	13.2
Spartanburg	22.9	21.0	7 0	13.5

Note—Dealer contracts are written at the dealer's price, which to divided dealers is 2½ cents per gallon above the tank car price and to undivided dealers 2 cents above the tank car price. This affects all points. Kerosene 1 cent off tank wagon for 25 gallons or more under contract except New Jersey and Baltimore, Md.

Nebraska

STANDARD OIL CO. OF NEBRASKA

	Gasoline: Tank wagon	Service station	Incl'ds tax of	Kero. tank wagon
Omaha	17.3	19.3	5.0	9.0
McCook	18.4	18.4	5.0	8.0
Norfolk	17.0	17.0	6.0	8 5
North Platte	18.0	18.0	5.0	8.5
Scottsbluff	18.8	19.3	5.0	11.0

Note—Discount to dealers, including any rentals under lease and agency agreements: Undivided accounts, Standard Red Crown and Red Crown Ethyl Gasoline 4 cents, Reliance (third brand) 3 cents, under service station price. Divided accounts, Standard Red Crown Ethyl Gasoline 3½ cents, Reliance (third brand) 2½ cents, under service station price. Discounts to consumers covered only by form CD-1, official commercial consumer contract.

Central South District

STANDARD OIL CO. OF LOUISIANA

	Gasoline: Tank wagon	Service station	Incl'ds tax of	Kero. tank wagon
N. Orleans, La.	20.3	16.5	*7.0	†12.0
Baton Rouge	19 7	19.2	6.0	†12.0
Alexandria	20.6	20.1	*7.0	†10.0
Lafayette	20.8	20.3	*7.0	†12 0
Lake Charles	20.7	20.2	*7.0	†12.0
Shreveport	18.5	18.0	6.0	†12.0
Knoxville, Tenn.	24.2	23.7	8.0	13 0
Memphis	22.6	17.5	8 0	10.5
Chattanooga	24 0	23.5	8.0	12.0
Nashville	23.5	16.0	8.0	11.0
Bristol	24.0	19.0	8.0	14.0

*Includes city tax of 1 cent. †Louisiana kerosene prices include 1-cent state tax.

Note—Dealer contracts are written at 2½ cents above the posted tank car price.

Pacific Coast Territory

STANDARD OIL CO. OF CALIFORNIA*

	Gasoline: Tank wagon†	Posted retail	Incl'ds tax of	Kero. tank wagon
San Francisco	12.0	15.0	4.0	12.5
Los Angeles	10.9	13.0	4.0	12.5
Fresno, Calif.	12.0	15.0	4.0	14.6
Phoenix, Ariz.	18.5	21.5	6.0	‡16.0
Reno, Nev.	17.5	20.5	5.0	15.5
Portland, Ore.	19.0	22.0	5.0	13.5
Seattle, Wash.	19.0	22.0	6.0	13.5
Tacoma	19.0	22.0	6.0	13.5
Spokane	21.0	24.0	6.0	18.0

*Retail prices posted by Standard Stations, Inc., a subsidiary.

†Prices are at company's plant or depots, as company does not operate stations. A 4-cent per gallon discount is given dealers and customers taking tank wagon lots except in Phoenix where the discount is 1 cent.

‡Includes 5 cents state tax.

Pennsylvania, Delaware and Part of New England

ATLANTIC REFINING CO.

	Gasoline: Tank wagon	Service station	Incl'ds tax of	Kero. tank wagon
Philadelphia, Pa.	15.5	17.5	4 0	10.0
Pittsburgh	16 0	17 0	4 0	10.0
Allentown	15 5	17.5	4.0	10.0
Erie	12.0	15.0	4.0	9 0
Scranton	16.0	18.0	4 0	10 0
Altoona	16 0	18.0	4.0	10.0
Dover, Del.	16.0	18 0	4.0	10 0
Wilmington	16 0	18.0	4.0	9.0
Boston, Mass.	15.5	17.5	4.0	8.0
Springfield	15 5	17.5	4.0	8.5
Worcester	16.5	18.5	4.0	9.0
Hartford, Conn.	15.4	17.4	3.0	9.0
New Haven	15.2	17.2	3.0	9.0
Providence, R.I.	12.5	14.5	3.0	8.0

Note—Tank wagon prices are those applicable to consumers purchasing lots of 100 or more gallons in one delivery.

New York and Part of New England

STANDARD OIL CO. OF NEW YORK

	Gasoline: Tank wagon	Service station	Incl'ds tax of	Kero. tank wagon
Albany, N. Y.	16.1	17.1	4.0	9.0
Met. New York	16.5	17.5	4.0	8.5
Buffalo	17.5	18.5	4.0	8.5
Rochester	17.5	18.5	4.0	8.5
Syracuse	17.0	18.0	4.0	9.0
Boston Mass.	16.5	17.5	4 0	8.0
Portland, Me.	18.2	19 2	5.0	8.5
Manch't'r N. H.	19 2	20.2	5.0	9.0
Burlington, Vt.	19.8	20.8	5.0	9.5

Commercial consumers allowed 2 cents discount below service station prices in accordance with CD-1 of oil industry's code.

Ohio

STANDARD OIL CO. OF OHIO

	Gasoline: Tank wagon	Service station	Incl'ds tax of	Kero. tank wagon
Ohio points	17.5	19.5	5.0	*13.5

*Includes state tax of 1 cent, effective July 22

Canada*

IMPERIAL OIL, LTD.
Imperial 3-Star Gasoline

	Gasoline: Tank wagon	Service station	Incl'ds tax of	Kero. tank wagon
Hamilton, Ont.†	26.5	27.5	6.0	17.5
Toronto, Ont.†	26.5	24.5	6.0	17.5
Brandon, Man.*	31.0	34.5	7.0	22.5
Winnipeg, Man.	28.7	31.7	7.0	20.2
Regina, Sask.	29.0	32.0	6.0	21.5
Saskatoon, Sask.	31.8	34.8	6.0	24.3
Edmonton, Alta.	31.2	34.2	6.0	23.7
Calgary, Alta.	28.5	31.5	6.0	21.0
Vanc'ver, B.C.†	30.0	31.0	7.0	24.0
Montreal, Que.	24.0	27.0	6.0	17.0
St. Johns, N.B.	26.5	30.5	7.0	21.0
Halifax, N. S.	25.5	29.5	6.0	21.0

*Imperial gallon used in Canada. †Dealer discount posted tank wagon on gasoline in Ontario and British Columbia subject to dealer's discount of 3 cents per gallon.

Retail Price Changes

Regular-Grade Gasoline and Kerosene

Magnolia Petroleum Co., May 9, advanced gasoline tank wagon and station prices .6 cent in Fort Smith and 1.6 cents in Little Rock; May 11, advanced gasoline tank wagon and station prices one-half cent in El Paso.

Standard Oil Co. of Louisiana, May 12, reduced gasoline station price 2½ cents in Memphis. May 15, reduced gasoline station price 2½ cents in Shreveport. May 18, advanced gasoline tank wagon and station prices one-half cent in Louisiana and Tennessee, except that station prices remained unchanged in New Orleans, Memphis, Nashville and Bristol. May 10, advanced kerosene tank wagon price 1 cent in Memphis. May 14, advanced kerosene tank wagon price 1 cent in Chattanooga. (Effective date of gasoline station price advance of 2.6 cents in Alexandria was May 1 instead of April 30 as reported.)

Standard Oil Co. of New Jersey, May 12, advanced gasoline station price .9 cent in Charlotte. May 15, advanced gasoline station price 1.3 cents in Washington. May 11, advanced gasoline station price 1½ cents in Salisbury; May 12, advanced it one-half cent. May 18, advanced gasoline tank wagon and station prices one-half cent throughout its territory, except that station prices remained unchanged in Cumberland, Roanoke, Richmond, Parkersburg, Hickory, Raleigh and Spartanburg.

Atlantic Refining Co., May 12, reduced gasoline tank wagon price 3½ cents and station price 2½ cents. May 19, advanced gasoline tank wagon and station prices 1 cent in Massachusetts, Connecticut and Rhode Island; May 22, advanced gasoline tank wagon and station prices one-half cent in Pennsylvania and Delaware.

Standard Oil Co. of New York, May 18, advanced gasoline tank wagon and station prices 1 cent in New York and New England.

Imperial Oil Co., Ltd., May 14, reduced gasoline station price 3 cents in Toronto.

Standard Oil Co. (Indiana), May 5, reduced gasoline station price 2 cents in Mankato, Minn.; May 5, reduced tank wagon price .7 cent and station price 2.7 cents in Kansas City; April 5, reduced tank wagon and station prices 1.5 cents in Joliet; April 17, reduced tank wagon and station prices 1 cent in Joliet; May 8, reduced station price 2 cents in Davenport; April 26, reduced station price 3.7 cents in Quincy; May 5, reduced station price .4 cent in Quincy; April 4, reduced station price 2.7 cents in Decatur; April 19, advanced station price 2 cents in Decatur; February 23, reduced tank wagon price .5 cent in Evansville; April 14, reduced tank wagon price 1.2 cents and station price .6 cent in Milwaukee; April 17, reduced tank wagon price .1 cent and station price .7 cent in Milwaukee; February 23, advanced tank wagon price 1.5 cents in Peoria; March 14, reduced station price .5 cent in Peoria; May 16, reduced station price 2.3 cents in St. Joseph; April 17, reduced station price 2 cents in East St. Louis; April 18, reduced station price 1.5 cents in East St. Louis. (Report of 3.7-cent tank wagon price reduction at Des Moines, Iowa, April 25, in May 10 issue erroneous; price unchanged at 16.6 cents.)

NEWS FOR SALES DEPARTMENTS

Retail Prices of Gasoline Advanced in Toronto Area

TORONTO, Ontario, May 19.—Effective May 14, a general increase of 2 cents a gallon was made in retail gasoline prices in the Toronto truck tank area, extending from Bowmanville west to Sarnia and Windsor.

In January a price war developed, in the course of which Imperial Oil, Ltd., put on the market a "blue gas" to sell at 5 cents a gallon less than its 3-Star gasoline. On May 14 the Imperial raised the price of this brand 2 cents and reduced the price of its 3-Star brand 3 cents, bringing them to the same level. The major refining and distributing companies have followed this with a general advance of 2 cents. It has been estimated that the price cuts made last January represented a saving to gasoline users in the territory affected of $10,000 a day.

The January price cuts were brought about primarily by the fact that various contracts for supplying some of the independent organizations with gasoline were used by the latter to under-cut the prices of the regular service stations; and that unfair advantage was given certain truck owners who operated in the most populous centers, paid low wages, and were consequently able to operate on a narrow spread. The cutting by the larger companies represented an effort to counteract these operations.

POST OFFICE ON NEW BASIS

CHICAGO, May 21.—A shift to the tank wagon purchase of gasoline, contrasted with the former basis of tank car buying, appears to be costing the Chicago post office more money. The post office is asking for bids on 200,000 gallons, for the third quarter of 1934, all bids to be considered up to 10 a. m., May 31. Just why the change was made is not clear, although in the trade the feeling is that it was an outgrowth of the oil code. The modified form used for bids is now coming through from Washington, whereas formerly it was made up here.

The present quarter's contract is held by Wells Petroleum Co. and specifies a price of 2 cents a gallon below the company's posted tank wagon price on date of delivery. The company's price for the last few weeks has been 13 cents, meaning a net price of 11 cents to the post office, excluding tax.

BULLOCK NEW CHAIRMAN

On account of his acceptance of membership on the Planning and Coordination Committee administering the oil code at Washington, Edward G. Seubert, president of Standard Oil Co. (Indiana), has resigned the general chairmanship of the code committee for Region 3.

E. J. Bullock, vice president of Standard of Indiana, has been appointed by Secretary Ickes as succeeding general chairman. As Mr. Bullock has been assisting Mr. Seubert in handling code administration for the region he is already thoroughly familiar with the duties involved.

The regional committee applies code recovery plans in the States of Illinois, Indiana, Iowa, Kentucky, Michigan, Minnesota, Missouri, Nebraska, North Dakota, South Dakota, Ohio, and Wisconsin. It is the agency for carrying out plans and policies worked out by the Planning and Coordination Committee and the Petroleum Administrative Board, working under the direction of Secretary Ickes, in Washington.

Propose Modification of Code Rule in Regard to Selling Oil Below Cost

Modification of Rule 4 in the oil code has been proposed to the Planning and Coordination Committee which specifies the following:

"No refiner, distributor, jobber, wholesaler, retailer or other marketer of petroleum products shall sell any such products below the cost thereof as hereinafter defined, except as hereinafter stated.

"Within the meaning of this rule, cost shall include (1) the market price of raw materials at the date of sale involved, plus the cost of transportation of such raw materials at the lowest generally available rates; (2) the expense of refining or processing such raw materials, including reasonable depreciation on equipment, plus the cost of the transportation of the refined products involved at the lowest generally available rates; (3) the fair and reasonable expense of marketing, which shall be in no event less than the prevailing jobber and dealer margins in the area involved. Such margins shall be determined and/or adjusted by the Planning and Coordination Committee, subject to the approval of the administrator; (4) all taxes and inspection fees for preceding the sale involved; (5) a fair and reasonable allowance for overhead, including management or supervision, or so many of these items as may apply to or precede the sale involved, dependent on whether the sale is by a refiner, distributor, jobber, wholesaler, retailer or other marketer. Distribution between products of Items 1 and 2 and of crude oil transportation shall be according to the sales realization method employed by the Tariff Commission in its Report No. 30, dated November 30, 1931, except that blending and finishing costs shall be applied directly to the products affected. The rule here stated for determining cost may be changed by the Planning and Coordination Committee with the approval of the administrator at any time and from time to time, of which public notice shall be given 10 days in advance of the effective date of the change.

"Whenever any refiner, distributor, jobber, wholesaler, retailer or other marketer of petroleum products shall desire to sell below his cost in order to meet competition, he shall address a communication by telegram or letter to the Planning and Coordination Committee, with copies to the general chairman of the regional committee and to the chairman of the marketing committee for the state, giving the name and address of the marketer whose lower prices the applicant desires to meet the prices at which such marketer is selling, the products sold and the differential between such price and the cost of the product involved. The Planning and Coordination Committee, with the advice of state and regional committees and with the approval of the petroleum administrator, may then for such period as it deems advisable authorize such refiner, distributor, jobber, wholesaler, retailer or other marketer to lower his price accordingly; provided that upon the granting of any such authorization, the petroleum administrator, or any agency designated by him, shall immediately order a hearing to be held upon such reasonable public notice as the administrator may prescribe, and upon such hearing may prescribe a minimum price or prices at which sales can be made in such area, which price or prices shall remain in effect for such period as may be deemed advisable by the administrator. Sales below cost without obtaining the authorization hereinbefore provided for, or below such minima as are established pursuant to this rule, shall be unfair competition and constitute a violation of the code.

MAY FORCE SHUT DOWN

REGINA, Saskatchewan, May 19.—C. B. Keenleyside, representing a group of independent refiners in Saskatchewan, states that independent refiners in the prairie provinces will be out of business after June 30 because crude oil will cost them 5 cents a gallon more than crude required for large refining companies. This result, he states, from the notification given by the Canadian railways to the United States railways comprising the Southwestern Freight Bureau, and the railways comprising the western trunk lines, that on June 30, 1934, all through freight rates on crude oil to points in western Canada must be cancelled. Mr. Keenleyside states that this measure really effects the independent refiners only since they can obtain the kind of crude they require only over the lines specified, and this cancellation closes to them the fields which were their source of supply.

RESUME SOVIET TRADING

NEW YORK, May 21.—The Socony-Vacuum Corp. has reached an agreement with the Soviet government for the purchase of some 500,000 bbls. of oil products, valued at about $1,000,000, for distribution in the Near East, it was learned Wednesday.

The company always has bought its supplies for the Near East either in Rumania or in Russia.

Significance was attached to the deal in oil circles, as marking the resumption of trade relations between the Socony-Vacuum and the Soviet after a two-year lapse.

RODGERS APPOINTED CHAIRMAN

W. S. S. Rodgers, president of the Texas Co., has been appointed chairman of the Refining Committee in Regional District No. 1 to succeed F. R. Coates, Cities Service Co., who has resigned as chairman of the Refining Committee to accept an appointment as a member of the Planning and Coordination Committee in Washington.

Two names have been added to the membership of the committee, namely, W. W. Lowe of Cities Service Co., and G. H. Van Senden of the Shell Union Oil Corp.

ORGANIZE OSAGE COMPANY

OSAGE, Wyo., May 19.—Osage Refining Co. has been incorporated under the laws of Wyoming, with 50,000 shares of no par value. The principal office of the company is located here, and E. C. Winters, D. M. Winters and R. E. Cunningham are the directors elected for the first year. The agent in charge is Howard Ortendahl. This group recently

DIRECTORATE REDUCED

MONTREAL, Quebec, May 19.—Frontenac Oil Co., subsidiary of the McColl-Frontenac Oil Co., has reduced the number of its directors from seven to three.

Standard New Jersey to Supply New Racing Fuel

NEW YORK, May 19.—The Standard Oil Co. of New Jersey is making a new motor fuel available to those who will participate in the Memorial Day race at Indianapolis, Ind., on May 30. The fuel is a blend of a product secured in the hydrogenation operations at its Bayway, N. J., refinery and natural gasoline. The company first made the hydrogenated product available about three years ago. It is a low gravity fuel with a narrow distillation range lacking the most volatile fractions of the ordinary gasoline. It was thought at that time that it would be an ideal aviation fuel because of its nonexplosive properties and its high B.t.u. content which would give greater mileage.

In order to give the necessary volatility for starting the hydrogenated fuel is being blended with a stabilized natural gasoline. It is claimed that the new fuel with the natural gasoline will have the quick starting and acceleration needed in fuels used by racing cars. It will retain the extra mileage which is especially important this year due to the fact that all cars are limited to 45 gallons of gasoline for the 500-mile race.

GAS CAUSES ACCIDENTS

Carbon monoxide was found in Massachusetts automobiles in sufficient quantities to be considered a definite factor in causing automobile accidents, according to a report submitted by engineers today to the governor's committee on street and highway safety. Extensive tests disclosed that 62 per cent of the automobiles, when in operation, contain measurable concentrations of the poisonous gas and approximately 10 per cent contain quantities enough to so incapacitate the drivers that the probabilities of serious accidents are greatly increased.

The tests were conducted with special apparatus over a period of a week or more by the Cities Service Refining Co. under the supervision of F. M. Van Deventer. The results confirmed similar tests recently made in Connecticut. Further verification will be sought in Maine.

JOBBERS ENTER PROTESTS

CHICAGO, May 21.—A meeting attended by several hundred jobbers of Iowa at Des Moines, May 18, climaxed a movement in the central states in which protests have been made against the tank wagon and service station gasoline price structure. The meeting was addressed by Ralph Horween, Chicago representative of the Petroleum Administrative Board, who promised the good efforts of the petroleum administration would be used to iron out difficulties.

The jobbers threatened to abandon allegiance to the petroleum code if their demands for a more stabilized selling price structure were not met. They also are demanding improved representation in the administration of the code.

Another meeting held on the same date at Springfield, Ill., saw directors of the Illinois Petroleum Marketers Association approve a plan to name a committee to protest to the administration along similar lines. On the same date a group of Wisconsin jobbers met at Madison to take similar action. Like moves have been made in Minnesota, Indiana and Michigan.

Jobbers assert the local nature of the price cuts is depriving them of relief under their marginal contracts and that their businesses are being ruined. One tabulation showed that of 1,200 incorporated towns in Illinois, there are local price cuts at about 1,000 of the points.

Senate Committee Opens Hearings on Oil Bill

(Continued from Page 7)

the unproduced quantity in sight has almost doubled; our billion-acre reserve is still a billion-acre reserve.

"3. Since September 1, 1933, there have been filed with the petroleum administrator 332 plans for the development of pools classed as new pools, at least 100 of which give promise of substantial new production.

"4. Practical men who are close students of the subject express the opinion that on our billion-acre reserve at least 1,000,000,000 bbls. of new production would be developed annually for five or 10 years at least, once restrictions are removed.

"5. State laws of curtailment and proration are permanent and not temporary in their nature. The entire approach has been with an eye to permanency in a remedy which needs only this bill as a capstone.

"6. If the argument is that the bill can be re-enacted if it works, the answer is that it can be repealed if it does not work. It is not like other emergency legislation; the oil industry, because of overproduction, would be in distress today, even if there were no general depression.

"7. A period of two years is entirely too short for any test, The courts will not have settled in that time the questions which will arise. Moreover, at least one full session of Congress should be allowed for Congressional procedure in regular course after a sufficient test period. Any hiatus would be harmful.

"8. The bill itself, in Section 19 and elsewhere, expressly and automatically limits its operation to periods of excessive supply, so that it may have one or several lives, or suspended animation, which is all that should be asked.

"9. Finally the question is whether we are to miss this opportunity to obtain something of a worth-while nature, something for which the constructive elements in the industry have worked for several years, and obtain it as a law like other laws, or whether we are timid souls. I, for one, am not a milquetoast.

"I hope the industry will express its views at once directly to Senators and Congressmen on the bill itself and on the two years' clause."

Ickes States Purpose

Commenting on statements by some Texas officials that the Federal bill would invade state rights, Secretary Ickes, oil administrator, issued the following statement:

"Statements that the Federal Government seeks to invade state rights and intervene in state affairs are based on unsound analysis, either of the proposed oil legislation or our record of the past few months under the oil code. There is no desire on the part of the oil administration to deprive any state of a single right.

"Instead, our aim is to reinforce and co-ordinate the state's efforts to balance the production of crude oil with the limited consumer demand. It is well established in law that the state's authority ceases at its boundaries, and it is equally well established in economic fact that virtually all crude oil moves into interstate commerce either in the raw state or as refined products. The intrastate and interstate character of the oil industry is so inextricably interwoven that it cannot, as an economic reality, be separated into corporate jurisdictions of state and national sovereignty. Recognizing this fundamental factor, it is our desire to co-operate with the states in a uniform method of preventing excessive production of crude oil, unlimited in potential totals, which would almost instantly flood the comparatively rigid total of the national demand. Demand cannot be expanded by a simple twist of the wrist, as can production.

"I hope we have written a farewell to arms of the militia we have seen called out in recent years in state efforts to maintain stability for the industry. But the bayonets of the guardsmen could not puncture the pipe lines, tank cars and tank steamers moving a swelling flood of illegal oil over state lines and disrupting the national market. I do not believe that either the states or the oil industry would like to go back to those days.

"With the help of the industry and of the states, we have come a long way in our mutual program. We do not want to slip from what we have gained and we should want to reach our objective of sound economic stability, true conservation, and a program fair to all producers and producing states."

Buying Surplus Gasoline

It is understood that pursuant to the request of the Planning and Coordination Committee that certain refining companies purchase surplus gasoline to the extent of 3 per cent of their May sales, several companies are now buying gasoline.

This buying policy of the companies is entirely independent of the so-called pooling agreement, which would have been a concerted enterprise with a combination of assets to further the ends of the agreement. On the contrary, this arrangement is entirely voluntary and is having no direction from the Planning and Coordination Committee, nor is any other committee or agency involved. All purchases are made by the individual companies, and all arrangements surrounding the transactions are done independently.

Clarence Darrow, chairman of the National Recovery Review Board, has submitted a partial report on that board's activities to the President, but it does not cover the hearings held by the board on the petroleum code, which will be the subject of a supplemental report to be filed in the near future.

Natural Gasoline

Representatives of the natural gasoline industry are here conferring with the Planning and Coordination Committee and the Petroleum Administrative Board in an effort to revise or amend the code to give this branch of the industry adequate representation. The creation of a subcommittee to deal solely with natural gasoline would require an amendment of the code. To avoid this it has been suggested that a subdivision be set up under the refinery subcommittee to work independently of that group, and to have a separate chairman.

Conferences were held last week with Howard Bennette, national coordinator, and E. B. Swanson, of the Petroleum Administrative Board. Informal discussions with the members of the refinery subcommittee and the statisticians of the committee are still in progress. Members of the industry who have attended these meetings include D. C. Williams, president Natural Gasoline Association; W. F. Lowe, secretary Natural Gasoline Association; Ray E. Miller, Hanlon-Buchanan, Inc.; John B. Atkins, Parade Gasoline Co.; A. T. Sherer, Sinclair Oil Co.; S. S. Smith, Shell Petroleum Corp.; T. B. Scott, Standard Oil Co. of New Jersey; C. B. Turner, South Penn Oil Co.; L. L. Tonkin, Hope Construction & Refining Co., and F. E. Rice, Phillips Petroleum Co.

Transporting Explosives

The Barbour bill (S. 3319) which would subject all agencies transporting explosives or other dangerous articles by land or water in interstate commerce to regulations promulgated by the Interstate Commerce Commission to cover such transportation has been reported out by the committee on the judiciary to the Senate. This bill would amend Section 233 of the Criminal Code by placing all carriers instead of merely common carriers, under the rules and regulations governing the transportation of such articles. The section provides that the Interstate Commerce Commission shall formulate regulations for the safe transportation of explosives and other dangerous articles, including inflammable liquids, inflammable solids, oxidizing materials, corrosive liquids, compressed gases and poisonous substances. Such regulations are binding upon shippers as well as carriers.

A hearing will be held at the Interstate Commerce Commission, June 6, with respect to regulations governing such transportation by motor truck common carrier lines. Some of the proposed regulations to be discussed at the hearing are as follows:

(a) Explosives and other dangerous articles, except such as are forbidden, may be offered for transportation to carriers engaged in interstate commerce by motor trucks, provided they are defined, packed, marked, labeled and described as provided in the regulations for transportation of explosives by rail.

(b) Motor trucks transporting explosives must be equipped with not less than one fire extinguisher and the vehicle must be inspected daily by its owner or his representative.

(c) Motor trucks must not be loaded beyond their rated capacity.

(d) Tail boards must be closed and securely fastened during transportation.

(e) The driver of the vehicle must not smoke nor permit any smoking on or near the vehicle while transporting these articles.

(f) When trips exceed 50 miles the driver must be accompanied by a capable assistant.

Method of Gasoline Allocation Criticized; Inventory Data Is Held Questionable

By ARTHUR E. PEW, JR.
Sun Oil Co.*

Despite a multitude of collected statistics, I do not believe any basic data now exists which enables a proper determination to be made as to the distribution of production and inventory quotas between districts. While the total gasoline production quotas for the country as a whole seem in line with the established gasoline inventory objectives, I am unable to determine from the published data any justification for the apportionment of such quota between the various districts and in addition I seriously question as to whether the inventory objectives are based on sound information. If we are to have refinery control of any kind, it is absolutely essential to success to have the correct basic data on which to proceed. No arbitrary setting of inventory or production objectives can succeed nor can any arbitrary allotment formula. A step in the right direction has been made in adopting uniform definitions of gasoline and terminals. A study must be made to determine proper minimum working stocks in relationship to refinery operations, seasonal variations and market demand. As stated previously, the overall demand figures for the country as a whole are unquestionably accurate, but the available data on relationship of national inventory to demand is questionable. New factors such as three grades of gasoline, changed methods of transportation, and distribution all have marked effect on proper minimum inventory levels as compared to past years. The study should cover terminals and refineries and should be based on location, shipping methods, refinery operating practice, etc. Such a study must be made by a group thoroughly experienced in practical operations and must be based on individual company analysis. For example, the study should show proper minimum stocks for a seaboard terminal as compared to a pipe line terminal, a refinery shipping by water as compared to rail, etc. The production study would cover varying conditions such as the demand operator as compared to the refinery which operates at a uniform rate all year. With such information, a proper basis would exist for setting objectives.

The study should start on the major companies, 24 companies operating 80 per cent of the refinery industry, and could be made in a reasonably short time. This would substantially develop a national picture which must obviously precede the regional picture.

I am convinced that the conditions existing in the different districts are so different one from the other that no single formula can be applied successfully and each district must select that formula which best meets its problems. I feel that it is to the interest of all to co-operate fully in making available true and accurate figures as required, for without the correct basic data inequalities are certain to continue. The final and most important element will be a true co-operative and voluntary effort towards such portion of stabilization as the refining industry can contribute to the industry as a whole.

In conclusion, a brief outline of actual performance on production and inventories (as reported by the Bureau of Mines) as compared to the production figures and inventory figures contained in the various resolutions of the Planning and Coordination Committee over the period November to Feburary, inclusive, may be of interest.

The total allotment for the country over this period was 117,960,000 bbls. and the production amounted to 127,534,000 bbls., or an excess of 9,574,000 bbls., which is equivalent to 8.1 per cent.

The inventory figure given in the Planning and Coordination Committee's resolutions for February 28 amounted to 52,130,000 bbls. The inventory at the end of February, 1933, amounted to 55,384,000 bbls. The inventory on February 28, 1934, amounted to 56,653,000 bbls., or an excess over the allotment of 4,523,000 bbls., which is equivalent to 8.6 per cent.

The figures suggest that the districts which had the greatest overproduction on a percentage basis showed the lowest excess inventories indicating that surplus production was moved into other districts.

*Extract from address before N.P.A., Cleveland, Ohio.

Special Gas Committee Named in Michigan

MUSKEGON, Mich., May 22.—The Michigan Public Utilities Commission has named an executive committee comprised of several leading members of a larger advisory committee recently appointed to assist the state department in compiling new rules and regulations governing the production, transmission and distribution of natural gas throughout the State.

Manfred K. Toeppen, chief consulting engineer for the commission; Charles E. Gauss, insurance commissioner; Dr. R. A. Smith, state geologist, and Oscar G. Olander, director of public safety, will represent the State.

Don R. Mitchell, of Detroit, president of the Fuel Oil Corp., and an official of Taggart Brothers, Inc., of Big Rapids, is chairman, and Wallace Pardoe vice chairman of the subcommittee on production.

H. S. Gentry, of Mount Pleasant, geologist and natural gas engineer, is chairman of a subcommittee on engineering; T. F. Older, manager of the municipal gas department of Ypsilanti, chairman on distribution, and William Shakespeare, mayor of Kalamazoo, head of the consumers subcommittee.

MAGNETIC STORM

Tucson, Ariz., observatory of the U. S. Coast and Geodetic Survey report a moderate magnetic storm started at 10 p. m. (C.S.T.) on May 18 and ended at 4 a. m. (C.S.T.) on May 19. Their telegrams follow:

"Storm began eighteenth. Four. Moderate."

"Storm ended nineteenth. Ten."

Relationship of Motor Fuel Octane Number to Compression Ratio of Automobile Engine

By C. D. HAWLEY and EARL BARTHOLOMEW
Ethyl Gasoline Corp.*

Ever since the antiknock value of fuel became of importance in the operation of automobiles, there has been a natural desire for some kind of formula that would connect engine compression ratio and the octane number of the required fuel. From

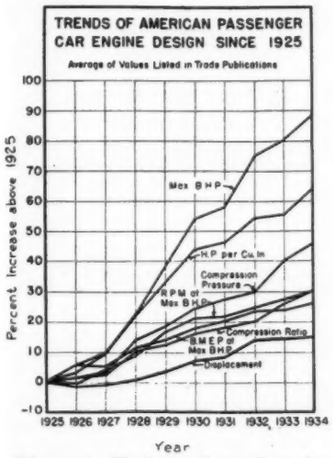
TRENDS OF AMERICAN PASSENGER CAR ENGINE DESIGN SINCE 1925
Average of Values Listed in Trade Publications
Percent Increase above 1925
Max B H P
H P per Cu In
Compression Pressure
R P M of Max B H P
Compression Ratio
M E P of Max B H P
Displacement
1925 1926 1927 1928 1929 1930 1931 1932 1933 1934
Year

Figure 1—No let-up toward engine of greater power

time to time classifications of cars have appeared which designated certain cars as of the high compression type and requiring fuel of high octane number and others of the low compression type suitable for use on lower grade fuels. Usually the separation has been made on the basis of absolute volumetric compression ratio, all cars having engines with compression ratios in excess of, say 55.5 to 1, appearing in the high compression group.

It would be extremely convenient if such a relation between compression ratio and fuel requirement should exist but actually there is no necessary connection. Engine design and conditions of operation cover a wide range, and compression ratio is only one of a large number of factors which influence the required fuel octane number.

A somewhat analogous problem is presented when attempts are made to measure the antiknock value of fuels by means of chemical tests such as gravity and unsaturation measurements. Fuels consist of many series of definite chemical compounds and, while it may be possible to develop a definite relation between antiknock value and certain physical characteristics of a given series of compounds, such equations would be quite different for the various series and the task would become hopeless.

More to Consider

One definite relation exists between antiknock value and compression ratio: the higher the compression ratio of a given engine, the higher is the octane number of the fuel required for equally satisfactory operation, other factors remaining the same. It is, therefore, interesting to note the general trend of automobile compression ratios and power output in the period during which the oil industry has been improving the antiknock value of the available fuels. Perhaps of greater significance is a study of the engine factors which control the power production possibilities of a given fuel. This paper attempts briefly to consider these two phases of the fuel utilization problem.

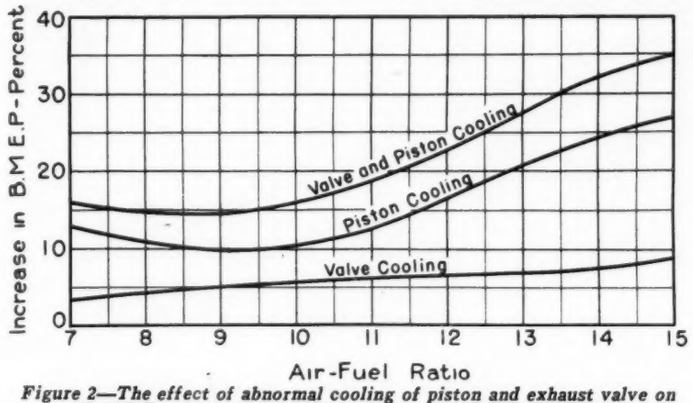

Figure 2—The effect of abnormal cooling of piston and exhaust valve on B.M.E.P. of throttled engine for equal knocking tendency

L-Head, Single Cylinder Engine

Bore—3¼" Stroke—5" Comp. ratio—7.0 Speed in r.p.m.—600
Jacket temp., deg. F.—212 Throttle opening—Varied Air-fuel ratio—Varied
Spark adv.—Max. power Cyl. head material—Cast iron Piston material—Aluminum

Figure 1 shows graphically the average percentage change in the displacement, speed, compression and horsepower of passenger car engines since 1925, based on models listed in trade publications. A brief inspection of the curves is sufficient to indicate the remarkable strides which have been made during the past nine years in the development of the automobile engine. Average power output has been increased 88 per cent. The horsepower of the cheaper and by far the most numerous cars is now two to four and one-half times the 1925 figures.

Increases in power must necessarily come from increases in one or more of the following:

1. Displacement.
2. Speed.
3. Brake mean effective pressure.

Figure 1 shows that the average engine now has 14 per cent greater displacement than in 1925 and that there has been no change in this figure during the past two years. The automobile engineering fraternity is convinced of the folly of a displacement race and is concentrating its efforts on a better utilization of a given cylinder capacity and weight of metal.

Power Up 30 Per Cent

The average 1934 engine has a power peaking speed 30 per cent higher than in 1925 and there is no indication that the limit has been reached. Because of the high torque requirement of the automobile engine over its entire speed range, it has not been possible to alter valve timing to favor the higher speeds; instead the better high speed performance has resulted almost entirely from freer breathing and higher compression pressures which also improve low speed torque.

Brake mean effective pressure at the power peaking speed has increased 27 per cent. In other words, every cubic inch of engine delivers 27 per cent more power at a given speed than it did in 1925 and, at the same mixture ratio, there is a corresponding improvement in specific economy. Average compression ratios have gone up 30 per cent and compression pressures at least 46 per cent. The data for the latter curve were obtained from published data on compression ratios in conjunction with average data on the relation of compression pressure to compression ratio in modern engines. It is known that restricted breathing of the earlier engines produced a lower compression pressure at a given compression ratio and, consequently, a lower volumetric efficiency. Higher compression ratios and improved volumetric efficiency are responsible for the higher brake mean effective pressure of the present automobile engine.

Compression ratios of 1934 cars range from 4.95 to 7.18 whereas in 1925 the spread was from 3.6 to 5.1.

Steps Taken

It is apparent, therefore, that the steady improvement in the antiknock value of fuels which the oil refiner has made during the past nine years has contributed to progressive engine design in four ways:

1. By suppressing the detonation which normally results from an increase in volumetric efficiency.
2. By permitting higher engine speeds obtained by the higher volumetric efficiency and by eliminating the knock which tends to increase with speed in certain types of engines.
3. By making possible improved cyclic efficiency through higher compression pressures.
4. By overcoming the greater knocking tendency of the larger displacement cylinders which have appeared in certain cars.

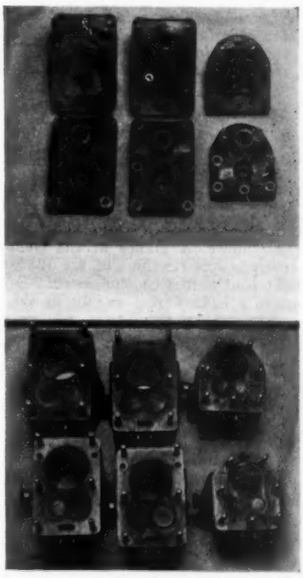

Figure 4—Cylinders and cylinder heads used in study of relation of cylinder displacement to fuel octane number requirement

Increased detonating tendency has always confronted the automotive engineer regardless of the direction in which he has turned in his search for more power; hence improved fuels have largely contributed to making his achievement possible. A gallon of gasoline is no larger today than it was in 1925 but its hidden potentialities account for the major portion of the 88 per cent increase in average engine horsepower. The average car owner probably takes for granted the availability of gasoline suitable for the new car he purchases without realizing

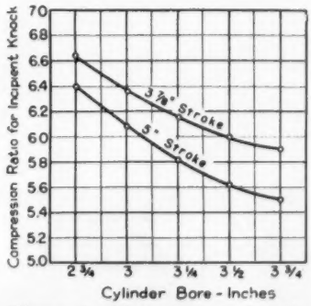

Figure 5—The relation of cylinder displacement and fuel antiknock value to compression ratio for incipient knock

L-Head, Single Cylinder Engine

Bore—Varied; Stroke—3¼" and 5"; Speed in r.p.m.—600; Throttle opening—Full; Cylinder head material—Cast iron; Fuel octane No.—80; Compression ratio—Varied; Jacket temp., deg. F.—212; Air-fuel ratio—Max. knock; Spark advance—Max. power.

*Presented before midyear meeting of A.P.I., May 22-24, at Pittsburgh, Pa.

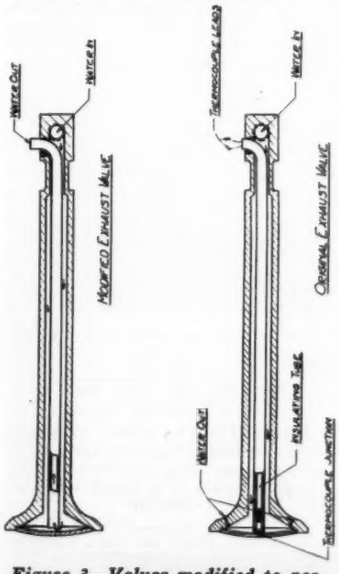

Figure 3—Valves modified to permit rapid cooling

the part the refiner has played in advancing his motoring pleasure, convenience and economy.

As has been stated previously, there is no general definite relation between per-

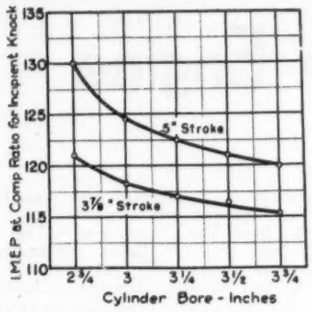

Figure 6—The relation of cylinder displacement and fuel antiknock value to indicated M.E.P. at compression ratio for incipient knock

L-Head, Single Cylinder Engine
Bore—Varied; Stroke—3⅜" and 5"; Speed in r.p.m.—600; Throttle opening—Full; Cylinder head material—Cast iron; Fuel octane No.—80; Compression ratio—Varied; Jacket temp., deg. F.—212; Air-fuel ratio—Max. knock; Spark advance—Max. power.

missible compression ratio and fuel octane number. A glance at the compression ratio specifications of the 1934 cars might lead to the conclusion that engine designers have varied widely in the degree to which they have utilized the fairly uniform grades of gasoline which have been made available by refiners. Actual tests of the cars do not confirm this conclusion and one is forced to accept the fact that the problem is somewhat complicated.

Influences Exerted

Research and experience have shown that the compression ratio which may be used with a given fuel is influenced by the following 10 variables:

1. Engine design.
2. Cylinder size.
3. Materials of construction.
4. Carbonization, rusting and liming.
5. Engine speed.
6. Jacket temperature.
7. Mixture ratio.
8. Mixture temperature.
9. Volumetric efficiency.
10. Ignition timing.

The known facts in reference to the above-mentioned variables are voluminous and the scope of this paper permits only a brief consideration of each.

Engine design, in relation to knocking tendency, has been a subject of debate since detonation began to impose limits on engine output and the complexity of the problem is probably ample assurance that the discussion will be continued. For the purpose of illustration, engines may be roughly divided into two classes, viz., L-head and valve-in-head. Other

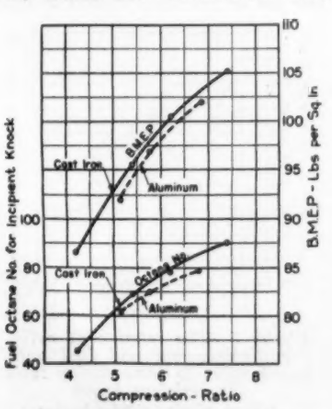

Figure 7—The effects of cylinder head materials and variation in compression ratio on the fuel antiknock value requirement and B.M.E.P. of a single-cylinder engine speed for maximum torque

things being approximately equal, the valve-in-head engines permit considerably lower compression ratios on a given fuel than do L-head engines but the lower ratios produce a power output comparable with the higher ratios of the latter. Thus an explanation is immediately offered for substantial portion of the variation in compression ratio of the 1934 cars.

Cooling Important

The compression ratio that may be used on a given type of engine is influenced materially by the provisions

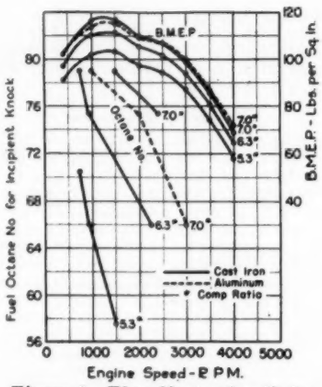

Figure 8—The effects of cylinder head materials and variation in compression ratio on the fuel antiknock value requirement and B.M.E.P. of an eight-cylinder automobile engine

made for cooling the cylinder elements which normally attain the highest temperatures. Figure 2 shows the additional brake mean effective pressure that was obtained by increased throttle opening of a high compression single cylinder engine made possible on the same fuel by abnormal cooling of the exhaust valve and piston. The piston was cooled by a spray of soapsuds against the under side, the same liquid having been used also for crankcase lubricant. The exhaust valve was hollow, as shown in Figure 3, and was cooled by the circulation of cold water through the stem and head.

The percentage gains in power output would not have been so large had the throttle opening been kept constant and the increased compression pressure gained by increases in compression ratio but would have been of approximately the same magnitude had an engine operating at full throttle been supercharged. Both of the cooling methods described above are limited to laboratory use but the results obtained should serve as a goal for engine builders in designing within the limits of practicable possibilities. It may be pointed out that the economical mass production of automobile engines seems to preclude the use of many of the types of construction which have contributed to the superior cooling of aircraft engines.

Cylinder Size

Cylinder size bears a definite relation to permissible compression pressure on a given fuel. Any increase in cylinder dimensions tends to increase detonation tendency, hence the larger cylinders are limited to lower brake mean effective pressures than are possible with the smaller cylinders of the same general design. Figure 4 shows a series of single cylinder heads and variable bore blocks used for a study of this variable. Two crankshafts, giving different strokes, were also used. A single cylinder engine was chosen for a study of this and the other variables covered by the paper because of the better control that could be exercised over the variables not under investigation. Experience has indicated the good correlation of the data with those obtained on multicylinder engines and a few data for the latter engines are included in this paper.

Figure 5 shows the variation in permissible compression ratio on a given fuel for the several combinations of bore and stroke and Figure 6 shows the variation of indicated mean effective pressure. It is apparent that the smaller cylinders, because of higher permissible compression pressures on a given fuel, develop more power per cubic inch at a higher thermal efficiency than do the larger cylinders.

It is definitely known that the thermal conductivity of metals is of much importance in aircraft engine design. The possible advantages of the more highly conductive metals in automobile engine design have not yet been very well evaluated. Figure 7 shows a comparison of iron and aluminum cylinder heads over a range of compression ratios when used on the single cylinder engine previously mentioned. The data indicate a slightly lower brake mean effective pressure and

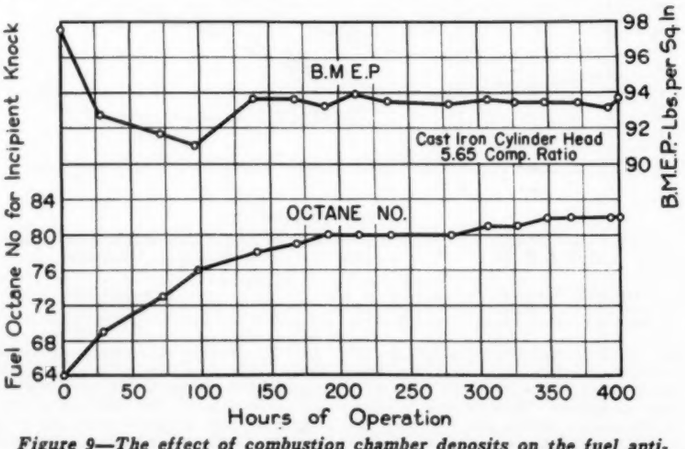

Figure 9—The effect of combustion chamber deposits on the fuel antiknock value requirement and B.M.E.P. of a single cylinder engine

octane number requirement for the aluminum heads at the same compression ratio. The brake mean effective pressure at any given octane number is practically identical for the two types of heads which, incidentally, were cast from the same patterns.

Figure 8 shows octane number requirement and brake mean effective pressure over a wide speed range for an eight-cylinder automobile engine equipped with cast iron heads of 5.3, 6.3 and 7.0 to 1 compression ratio and with an aluminum head of 7.0 to 1 compression ratio. In this case the aluminum head shows an advantage of approximately two octane numbers for the same brake mean effective pressure. Both types of heads were cast from the same patterns.

There has been some progress in combustion chamber design during the past few years and it is possible that the combustion chamber shape which is best for cast iron is not the most efficient for aluminum. Comparisons should be made of designs which represent the best achievements to date in the use of the two metals.

Aluminum Heads

The aluminum head has possibly not appeared to best advantage because it has been made interchangeable with iron heads. Conventional steel cylinder studs have an expansion coefficient entirely different from that of aluminum and a

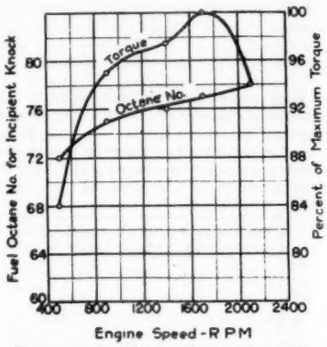

Figure 10—The effect of variation in engine speed on the torque and fuel antiknock value requirements of a single cylinder engine

Bore, 3¼" stroke—3⅜"; Speed in r.p.m.—Varied; Intake air temp., deg. F.—85; Throttle opening—Full; Cylinder head material—Cast iron; Comp. ratio—5.75; Jacket temp., deg. F.—190; Air-fuel ratio—13.5; Spark adv.—Max. power.

tendency has been noted for aluminum heads to be crushed under the stud nuts. Under certain conditions of operation the cylinder head may not subsequently be in too good contact with the cylinder head gasket. It would seem that more attention should be given to higher expansion cylinder studs and to any other features of design which will minimize the effects of the differential expansion of aluminum and ferrous metals.

It is common knowledge that cars usually have less tendency to detonate when they leave the factory than at any time afterward. Such a progressive change in knocking tendency may be due to carbonization of the combustion chamber, rusting of the water jacket or to the deposition of salts from cooling water additions. Figure 9 shows the increase in knocking tendency of the single cylinder engine with carbon accumulation. Rust and lime deposits in the water jacket have an effect similar to carbon deposits. It will be noted that deposition, in addition to increasing the knocking tendency, reduces power output.

Figure 10 shows that engine speed influences knocking tendency; in fact, many engines show an even greater change in required octane number for the same speed difference. Other types of engines may have their greatest knocking tendency at other speeds. Observa-

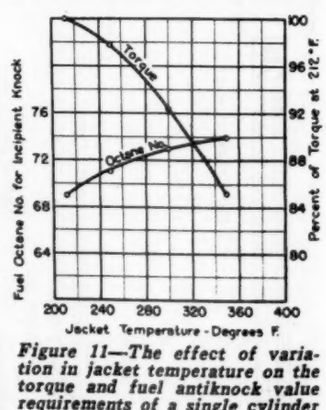

Figure 11—The effect of variation in jacket temperature on the torque and fuel antiknock value requirements of a single cylinder engine

Bore, 3¼" stroke—3⅜"; Speed in r.p.m.—800; Intake air temp., deg. F.—85; Throttle opening—Full; Cylinder head material—Cast iron; Comp. ratio—5.4; Jacket temp., deg. F.—Varied; Air-fuel ratio—13.5; Spark adv.—Max. power.

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. . . the lowest-priced Six you can buy, and it's all truck throughout

CHEVROLET For delivering gasoline and oil at low cost, take a *Six* every time—and if it's a Six with *overhead valves*, you'll save even more. For only an *overhead valve* engine can give you Blue-Flame combustion, with its greater operating economy and lower upkeep cost. And only a *Six* gives you smooth, steady power without needless extra cylinders to maintain. The 1934 Chevrolet truck is a *Six*—and it also has *overhead valves*. These two facts are all-important for economy. In addition, the 1934 Chevrolet is *all truck throughout*. You can load it to capacity and count on truck strength in every part—in the axles, springs, frame, transmission and brakes. Everything about the Chevrolet truck is bound to save money for any firm that handles oil products—and it's the *world's lowest-priced Six!*

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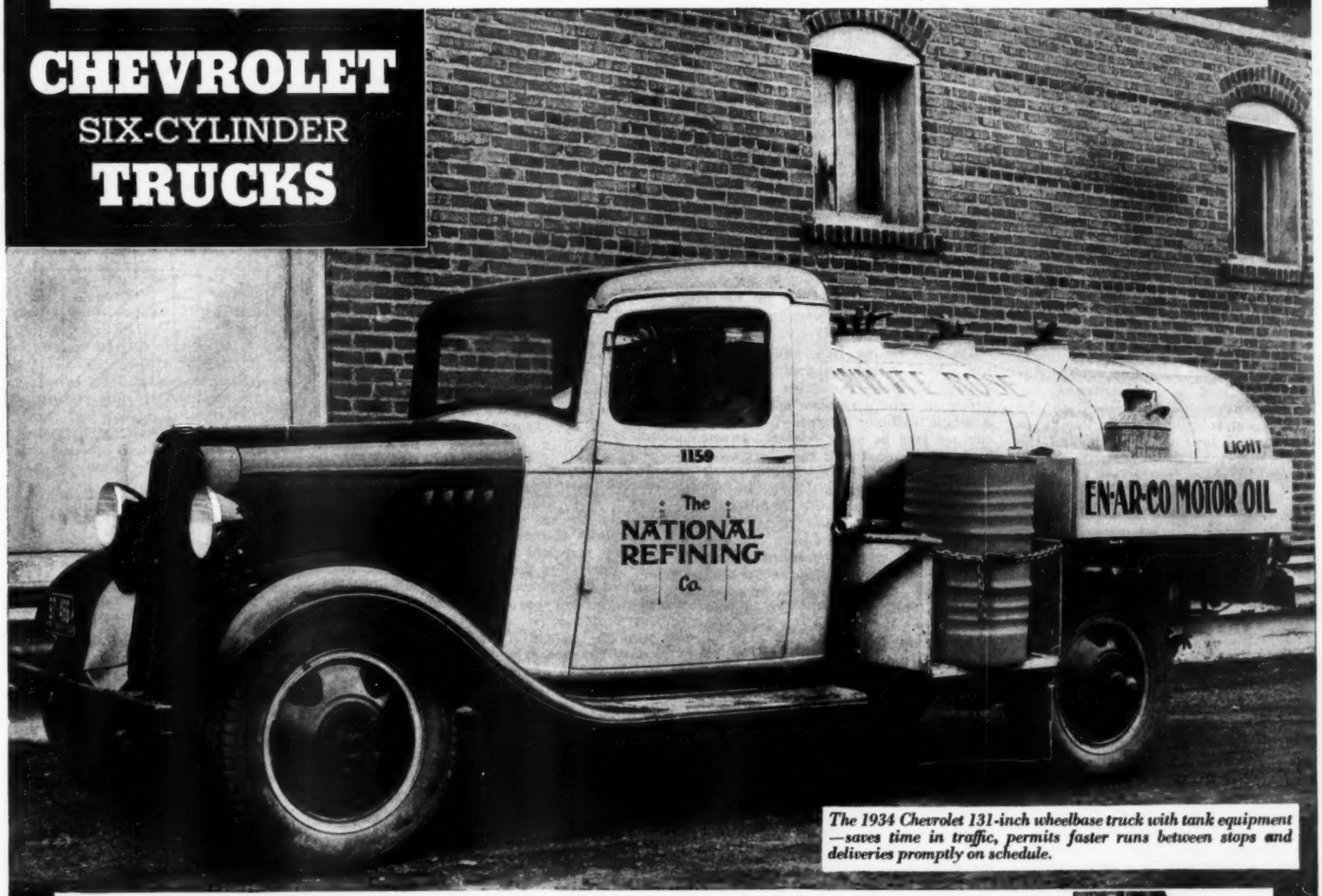
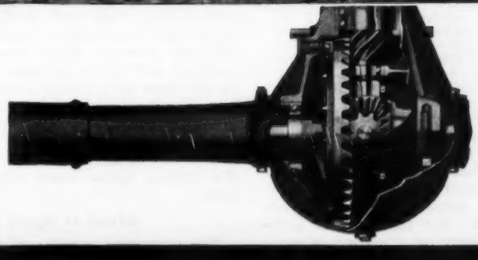


The 1934 Chevrolet 131-inch wheelbase truck with tank equipment —saves time in traffic, permits faster runs between stops and deliveries promptly on schedule.

HEAVY DUTY REAR AXLE

A liberal reserve of extra strength is built into the Chevrolet truck chassis for starting, pulling and stopping full-capacity loads. The rear axle is a typical example of this, having exceptionally big shafts, straddle-mounted pinion, 4-pinion differential, double row wheel bearings, one-piece banjo-type housing with big removable plate, and the lowest final gear ratio (rear axle and transmission combined) of any 1½-ton truck.



tions were not carried beyond 2,100 r.p.m. because of the disturbing effect of engine noise. It is apparent that if means were provided to prevent an engine from operating under full throttle at the speed of maximum knocking tendency, a higher compression ratio could be used.

Figure 11 indicates the effect of jacket temperature on octane requirement and torque. Higher temperatures demand bet-

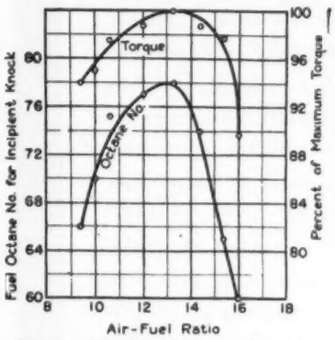


Figure 12—The effect of variation in air-fuel ratio on the torque and fuel antiknock value requirements of a single cylinder engine

Bore, 3¼" stroke—3⅜"; Speed in r.p.m.—800; Intake air temp., deg. F.—85; Throttle opening—Full; Cylinder head material—Cast iron; Comp. ratio—5.75; Jacket temp., deg. F.—190; Air-fuel ratio—Varied; Spark adv.—Max. power.

ter fuels and cause a very large sacrifice of torque as well.

Figure 12 shows that mixture ratio affects knocking. A change of air-fuel ratio from 9.4 to 13.0 to 1 changes the octane requirement by 12 units and a change from 13.0 to 16.0 to 1 permits an octane number change of 18 units. Obviously, mixture ratio is one of the most important factors in the problem but, unfortunately, the air-fuel ratio for maximum knock is not far different from that for maximum power, hence little can be done to improve the situation. A multicylinder engine with perfect fuel distribution, designed to run at the maximum economy air-fuel ratio, would run on a lower grade fuel than one designed for best power, but maximum economy at full throttle is seldom desired and perfect distribution would necessitate the use of highly volatile fuels or liberal intake manifold heating, or both, and the latter would tend to increase knocking.

Figure 13 shows the effect of intake

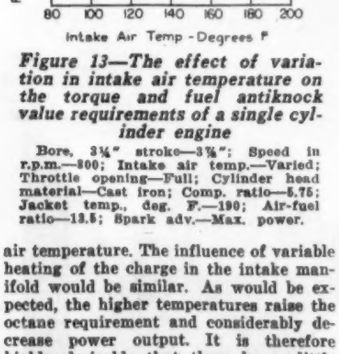


Figure 13—The effect of variation in intake air temperature on the torque and fuel antiknock value requirements of a single cylinder engine

Bore, 3¼" stroke—3⅜"; Speed in r.p.m.—800; Intake air temp.—Varied; Throttle opening—Full; Cylinder head material—Cast iron; Comp. ratio—5.75; Jacket temp., deg. F.—190; Air-fuel ratio—13.5; Spark adv.—Max. power.

air temperature. The influence of variable heating of the charge in the intake manifold would be similar. As would be expected, the higher temperatures raise the octane requirement and considerably decrease power output. It is therefore highly desirable that there be as little preheating of carburetor air or mixture as possible and the increasing ability of refiners to supply more volatile fuels permits a reduction in intake manifold heating.

Volumetric Efficiency

Knocking tendency increases along with volumetric efficiency whether the latter is due to decreased throttling at some point in the induction system or to greater manifold pressure resulting from supercharging or decreased altitude. Figure 14 indicates the effect of throttling a single cylinder engine. Both octane requirement and torque are reduced as manifold vacuum increases. When the former is reduced from 75 to 64, engine torque is reduced by 20 per cent. It is obvious that throttling is a most inefficient method of reducing knocking tendency. A reduction in compression ratio is much to be preferred.

It should be pointed out that because of the surging of the intake manifold pressure of a single cylinder engine and

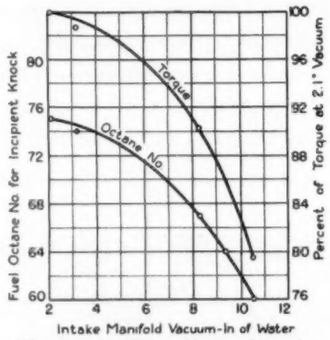


Figure 14—The effect of variation in throttle opening on the torque and fuel antiknock value requirements of a single cylinder engine

Bore, 3¼" stroke—3⅜"; Speed in r.p.m.—800; Intake air temp., deg. F.—85; Throttle opening—Varied; Cylinder head material—Cast iron; Comp. ratio—5.75; Jacket temp., deg. F., 190; Air-fuel ratio—13.5; Spark adv.—Max. power.

the consequent difficulty of measurement, the manifold vacuum shown in Figure 14 is only relative.

Ignition timing is a well known factor which influences fuel requirement. Figure 15 shows the effect of spark advance on octane number and torque for a single cylinder engine. Multicylinder engines may be more critical. It should be borne in mind that the spark advance for best power at any engine speed or throttle opening is influenced by engine temperature, atmospheric conditions, carbon accumulation and other factors, hence engines must be sent out with a spark setting which represents a compromise for average conditions. It can not be too far advanced because of excessive knocking tendency during the summer or too far retarded because of lack of performance during the winter.

Figure 16 shows the relation for one engine of brake mean effective pressure, compression ratio, spark advance and knocking tendency at one speed and wide-open throttle and indicates an interesting field for research on performance and economy. It will be noted that for a fuel of a given octane number there is a combination of compression ratio and spark advance which produces the maximum brake mean effective pressure and that the spark advance is retarded from the maximum power setting determined for the same compression ratio when a nonknocking fuel was used. At other speeds and compression ratios different relations between brake mean effective pressure and spark advance, determined on the same fuel, would exist. The problem, therefore, becomes one of determining for a range of speed and throttle opening the combination of the abovementioned variables which will produce the highest brake mean effective pressure.

Effect of Speed

The compression ratio of a given engine can not be changed during operation and the ratio that should be used is determined by the knocking tendency of the engine at the speed at which knocking is most pronounced. If maximum average economy over a wide range of operating conditions is desired, a compression ratio should be chosen which, under the conditions stated in the preceding sentence, requires the retardation of ignition timing below the best power setting for the elimination of knock on the fuel under consideration, but in no case should such a high ratio be chosen that the power developed with retarded spark is less than that at the highest compression ratio which permits maximum spark advance on the same fuel without knock. The latter is represented in Figure 16 by point A and the former by point B. At any compression ratio between these two points the thermal efficiency is higher than at A and the heat dissipation problem correspondingly less.

At other speeds at wide-open throttle and at all speeds at partial throttle the knocking tendency will be less and the spark may be advanced as far toward the maximum power setting as knocking will permit. The actual maximum power setting can be used over a wide range of conditions, particularly at partial throttle. Under such conditions full advantage is taken of the increased compression ratio. The adjustment of ignition timing required for the operation described above can be obtained by the careful design of a distributor mechanism ac-

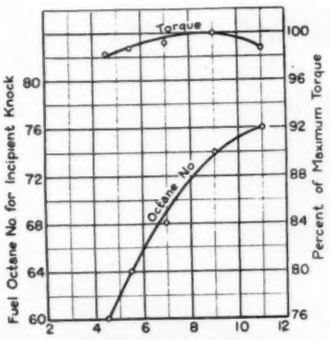


Figure 15—The effect of variation in ignition timing on the torque and fuel antiknock value requirements of a single cylinder engine

Bore, 3¼" stroke—3⅜"; Speed in r.p.m.—800; Intake air temp., deg. F.—85; Throttle opening—Full; Cylinder head material—Cast iron; Comp. ratio—5.75; Jacket temp., deg. F.—190; Air-fuel ratio—13.5; Spark advance—Varied.

tuated by changes in engine speed and intake manifold vacuum. The proper characteristics must be worked out by careful dynamometer tests. Substantial gains in fuel economy and some increase in performance over that obtainable through the use of the maximum power spark advance at wide-open throttle over the entire speed range have been reported as a result of preliminary tests.

Figure 17 shows the influence of octane number on the permissible compression ratio and torque of a large multicylinder engine. For the suppression of knock above 1,200 r.p.m. the 5.27 compression ratio requires a 78.7 octane fuel and the 4.40 ratio a 71.2 octane fuel. At the same speed the torque is 445 for the low ratio and 495 for the higher ratio, or a difference of more than 11 per cent for 7.5 octane numbers.

Summary of Results

In summarizing, it is apparent that any engine having the variables of operation adjusted for minimum knocking tendency could be run at some fraction of its potential output on almost any fuel at any reasonable compression ratio, hence a correlation of octane number and compression ratio is impossible. However, over-rich mixtures, low volumetric efficiency and excessively retarded ignition timing are poor substitutes for antiknock value in fuel.

The public, the refiner and the engine designer will all profit from a better utilization of the antiknock value of gasoline and greatest progress can be made through the co-operation of the three interested parties. The engine designer can afford to keep cylinder sizes within the efficient limits, provide for the cooling of cylinder parts whose temperatures

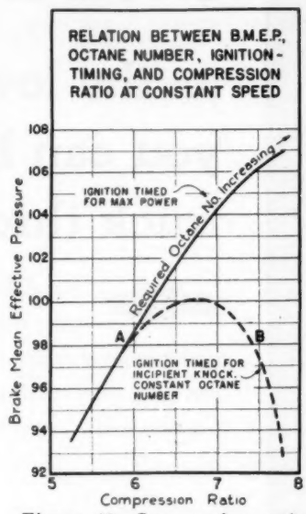

RELATION BETWEEN B.M.E.P., OCTANE NUMBER, IGNITION-TIMING, AND COMPRESSION RATIO AT CONSTANT SPEED
IGNITION TIMED FOR MAX POWER
Octane No. Increasing
Required
A
B
IGNITION TIMED FOR INCIPIENT KNOCK. CONSTANT OCTANE NUMBER
Brake Mean Effective Pressure
Compression Ratio

Figure 16—Compression ratio

materially affect knocking tendency and make an effort to utilize the more volatile fuels. The refiner can strive for lower vapor pressure and better antiknock stability of the lighter fuels. The motorist can assure himself of a full measure of the additional performance made possible through the co-operation of refiner and engine designer by operating his car on the recommended fuels and by maintaining as nearly as possible the original engine condition and adjustments.

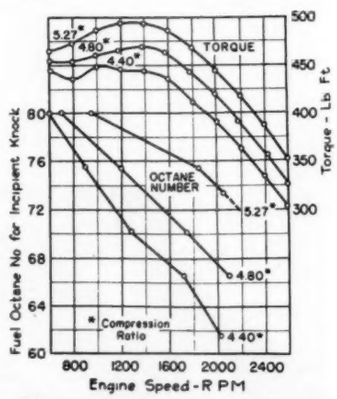


Figure 17—The fuel antiknock value requirements and torque of a large muticylinder engine at three compression ratios

Bore—4⅛" Stroke—5½" No. of cyls.—6

MOSUL OIL FIELDS

The nominal capital of Mosul Oil Fields, Ltd., the company which is actively carrying preparatory development work over a large oil concession in Iraq on the west bank of the River Tigris, has been increased by the addition of one-third beyond the registered capital of £1,000,000 ($5,000,000) in shares of £1 ($5) each.

RIG BUILDERS MEET

At a meeting of the National Rig Building Employers Association held in Tulsa last week, R. W. Sage of Wichita, Kans., was elected president to succeed the late D. D. Wertzberger. Mr. Sage is also president of the Kansas Rig Building Employers Association.

H. J. Stromberg, Ardmore, Okla., was elected a vice president to take the place made vacant by Mr. Sage's promotion, and R. C. Bearden of the D. D. Wertzberger Co., Tulsa, was elected to the board of directors.

Present Motor Car Design Causes the Waste of 992,000,000 Gallons of Gasoline Annually

By W. MENDIUS and W. G. AINSLEY
Sinclair Refining Co., East Chicago, Ind.*

Fuel-system vapor-locking characteristics of representative cars on the road have been rather thoroughly studied for the past three to four years, and the results show quite clearly that:

1. Maximum temperatures attained in the fuel systems are a major factor in vapor-lock occurrence.
2. Fuel-system temperatures are functions of atmospheric temperatures.
3. There is an extremely wide variation in fuel-system temperature characteristics for the various makes of cars tested.
4. With such temperature variations the oil industry is compelled to market gasolines of relatively low volatility so as to permit reasonable freedom from vapor lock in those cars which are the worst offenders. This practice definitely forces the oil industry to reject an appreciable and a valuable part of the available gasoline supply. This present rejected portion (the butanes) is in major part wasted or diverted to less valuable uses. Such practice is not co-ordinate with the policy of the conservation of natural resources of this country, and also increases the cost to the motoring public.
5. A few of the cars tested show very favorable fuel-system temperature characteristics, and demonstrate what proper design can accomplish.

Supply Can Be Increased

By universal adoption of automotive-fuel-system characteristics of "best-car" design as compared to present standards, a material increase in potential fuel supply would result. It is the intent of this paper to develop an estimate of such increase in potential fuel supply.

Bridgeman,[1] in his work which has been supervised by the C.F.R. Committee, has correlated permissible vapor pressures of gasolines with both atmospheric temperature and altitude. On the basis of 1933 car registrations and gasoline consumption, and by use of both "best-car" and "present-car" relationships between atmospheric temperatures and permissible gasoline vapor pressures, it has been developed that the available fuel supply may be increased by 992,000,000 gallons per year, or 6.4 per cent of the 1933 gasoline consumption.

*Before American Petroleum Institute in Pittsburgh, Pa.

[1] O. C. Bridgeman, H. S. White and F. B. Gary, Proc. Natural Gasoline Association, May, 1932.

TABLE 1—RANGES OF ALTITUDES AND MAXIMUM TEMPERATURES IN THE UNITED STATES

State—	City	Altitude above sea level* (feet)	Maximum temp. recorded* Summer period (deg. F.)	Maximum temp. recorded* Winter period (deg. F.)
Alabama	Birmingham	591-606	107	77
Arizona	Phoenix	1,083-1,090	118	80
Arkansas	Little Rock	249-299	108	78
California	Los Angeles	256-338	109	89
Colorado	Denver	5,200	105	74
Connecticut	Hartford	159	100	60
Delaware	Wilmington	86	107	67
District of Columbia	Washington	25	106	74
Florida	Jacksonville	8	104	83
Georgia	Augusta	180	105	78
Idaho	Boise	2,000-2,860	121	62
Illinois	Chicago	600	103	65
Indiana	Indianapolis	720-726	106	68
Iowa	Des Moines	804	113	67
Kansas	Dodge City	2,484	108	79
Kentucky	Louisville	525	107	74
Louisiana	New Orleans	6-15	102	82
Maine	Eastport	76	93	52
Maryland	Baltimore	115	105	73
Massachusetts	Boston	8-169	104	68
Michigan	Detroit	600	104	65
Minnesota	St. Paul	683-935	104	51
Mississippi	Macon	185	106	80
Missouri	St. Louis	500	108	74
Montana	Helena	3,913-4,157	103	63
Nebraska	Omaha	950-1,042	111	67
Nevada	Reno	4,484-4,499	102	67
New Hampshire	Concord	350	102	65
New Jersey	Bridgeton	30	104	71
New Mexico	Albuquerque	4,493-5,008	104	69
New York	New York	8-72	102	66
North Carolina	Asheville	2,253	96	76
North Dakota	Bismarck	1,618-1,672	107	44
Ohio	Cincinnati	481-545	105	72
Oklahoma	Oklahoma City	1,197	108	79
Oregon	Portland	28-175	104	64
Pennsylvania	Pittsburgh	731-756	103	73
Rhode Island	Providence	160	100	62
South Carolina	Charleston	10-15	104	80
South Dakota	Pierre	1,672	110	63
Tennessee	Memphis	117-273	106	72
Texas	Fort Worth	534-620	112	83
Utah	St. George	2,800	116	71
Vermont	Burlington	404	100	55
Virginia	Richmond	15-206	107	77
Washington	Seattle	0-119	98	62
West Virginia	Burlington	875	105	72
Wisconsin	Madison	849-860	104	58
Wyoming	Cheyenne	6,062-6,101	100	64

*Taken from "Meteorological Summaries," Weather Bureau, U. S. Department of Agriculture. The temperatures are the maximums ever recorded.

Since the two factors affecting permissible vapor pressures of gasoline, viz., atmospheric temperature and altitude, vary extremely for the several sections of the United States, it was deemed advisable arbitrarily to develop sectional gasoline consumptions and permissible vapor pressures by states. They were also developed seasonally by months. It is appreciated that other extent of territories and time limits may serve, but the difficulties of selection meeting universal agreement are obvious.

Since gasoline consumption is more or less concentrated in the larger cities, and since the meteorological data of cities were more readily available, atmospheric temperature and altitude data of these larger cities were used for the respective states. The maximum atmospheric temperatures ever recorded by the U. S. Weather Bureau stations for the individual locations were chosen to allow extreme safety factor. The higher the atmospheric temperature chosen, the lower the allowable vapor pressure, and the less the potential gasoline supply. Maximum values were selected where data for more than one city were available for each state. For simplicity, only high and low annual maximum temperatures are given in Table 1. For the United States these maximum temperatures, as affected seasonally and territorially, range from a low of 44° F. to a high of 121° F.

Bridgeman has developed a relationship between atmospheric temperature and permissible Reid vapor pressure of gasolines which can safely be used by current cars. Available gasoline-vapor-pressure surveys, presented in Table 2, when corrected for altitude and compared (average values) with maximum atmospheric temperatures, substantiate Bridgeman's recommendations. It is shown that these recommendations were exceptionally conservative for the higher atmospheric temperatures. Bridgeman's recommendations and the survey modification are graphically shown in Figure 1. The soundness and conservatism of Bridgeman's recom-

TABLE 2—REID VAPOR-PRESSURE SURVEYS OF SERVICE-STATION GASOLINES

State—	City	December, 1932, January, 1933, February, 1933 (*) No. samples	High Reid vapor pressure	Low Reid vapor pressure	Average Reid vapor pressure	July, 1933, August, 1933 (*) No. samples	High Reid vapor pressure	Low Reid vapor pressure	Average Reid vapor pressure	December, 1933, January, 1934 (*) No. samples	High Reid vapor pressure	Low Reid vapor pressure	Average Reid vapor pressure	August, 1931 (†) No. samples	High Reid vapor pressure	Low Reid vapor pressure	Average Reid vapor pressure	March, 1931 (‡) No. samples	High Reid vapor pressure	Low Reid vapor pressure	Average Reid vapor pressure
California	Los Angeles	..	10.2	6.8	8.6	..	9.0	6.8	7.7	..	10.1	8.0	8.9	18	9.0	5.8	7.3	16	10.8	6.8	8.4
	San Francisco	..	....	....	....	..	....	....	....	..	....	....	....	12	10.2	7.0	8.3	13	11.4	7.7	9.1
Colorado	Denver	11	11.5	8.1	9.7	10	7.9	5.7	6.8	11	13.0	6.2	9.6	9	7.3	6.3	6.8	8	11.5	7.0	8.6
District of Columbia	Washington	..	....	....	....	..	....	....	....	..	....	....	....	10	8.6	6.6	7.6	10	11.0	7.3	8.9
Georgia	Atlanta	..	....	....	....	..	....	....	....	..	....	....	....	13	8.2	6.6	7.5	13	9.4	5.3	8.1
Illinois	Chicago	10	13.5	10.3	11.5	12	9.2	7.3	8.1	22	12.0	8.6	10.7	16	9.7	6.7	8.1	14	13.5	8.2	10.6
	Peoria	11	15.0	9.6	11.5	..	....	....	....	22	12.6	8.7	10.8	..	....	....	....	..	....	....	....
Indiana	Indianapolis	11	11.1	8.9	9.8	11	8.3	7.2	7.6	22	12.5	8.5	10.7	..	....	....	....	..	....	....	....
Iowa	Des Moines	10	12.0	6.3	10.0	10	9.2	6.6	7.7	22	12.0	8.7	10.4	..	....	....	....	..	....	....	....
Kansas	Kansas City	11	11.7	8.4	10.3	11	9.0	6.1	7.6	22	12.5	8.4	10.5	..	....	....	....	..	....	....	....
	Wichita	11	11.7	8.6	10.6	11	7.7	5.9	6.8	11	11.2	8.1	10.0	..	....	....	....	..	....	....	....
Louisiana	New Orleans	..	....	....	....	..	....	....	....	..	....	....	....	12	8.9	5.7	7.7	11	11.7	6.4	8.0
Massachusetts	Boston	..	....	....	....	..	....	....	....	..	....	....	....	11	9.4	6.7	8.2	10	10.6	7.5	9.1
Minnesota	Minneapolis	11	12.8	8.3	10.8	10	8.8	6.7	7.6	22	12.1	9.2	10.7	11	9.2	6.6	7.9	11	12.5	6.5	9.7
Missouri	St. Louis	9	13.1	8.3	10.8	..	....	....	....	22	12.8	8.8	10.5	14	9.1	5.6	7.4	14	11.6	7.0	9.1
Nebraska	Omaha	11	13.6	7.8	10.1	..	....	....	....	22	12.6	8.8	10.3	11	8.4	6.4	7.3	11	11.3	7.1	9.0
New York	New York	..	....	....	....	..	....	....	....	..	....	....	....	11	9.3	6.4	8.0	10	11.1	8.4	9.7
Ohio	Cleveland	..	....	....	....	..	....	....	....	..	....	....	....	12	8.8	5.8	7.8	12	13.5	7.5	10.2
Oklahoma	Tulsa	11	12.8	7.4	10.2	12	8.5	6.9	7.8	23	11.5	8.7	10.3	11	8.6	6.5	7.3	10	11.1	8.1	9.4
Pennsylvania	Pittsburgh	..	....	....	....	..	....	....	....	..	....	....	....	11	9.3	6.7	8.2	10	10.5	8.3	9.5
Texas	Amarillo	10	12.3	4.4	8.7	..	....	....	....	11	10.5	6.8	8.3	..	....	....	....	..	....	....	....
	Dallas	..	....	....	....	..	....	....	....	..	....	....	....	13	9.0	6.4	7.6	9	10.1	6.9	8.2
	El Paso	..	....	....	....	..	....	....	....	..	....	....	....	6	6.8	5.8	6.0	6	8.6	7.3	7.9
Utah	Salt Lake City	..	....	....	....	..	....	....	....	..	....	....	....	10	8.1	6.4	7.3	10	10.1	7.6	9.4
Washington	Seattle	..	....	....	....	..	....	....	....	..	....	....	....	9	9.1	7.4	8.2	9	10.1	8.5	9.3
Wisconsin	Milwaukee	..	....	....	....	20	9.5	6.4	7.8	12	12.4	7.9	10.7	..	....	....	....	..	....	....	....

Notes: *Recent commercial surveys. †Bureau of Mines Report of Investigations No. 3,162. ‡Bureau of Mines Report of Investigations No. 3,142.

Note: No material differences in Reid vapor pressure for summer gasolines from 1931 to 1933. Reid vapor pressures of winter gasolines for 1933 are shown to be approximately 1 pound higher than for 1931. This may, in part, be accounted for by the fact that the 1931 survey covers March, which is more advanced in season than are December, January and February covered by the 1933 surveys.

mendation for gasoline-vapor-pressure specifications for current consumptions is proved by:

(a) The fact that average vapor pressures of these surveys, when plotted against the highest atmospheric temperatures ever recorded, are well within the practical range of Bridgeman's curve.

(b) The fact that the larger oil companies supply the major part of the gasoline consumption, with products generally of higher vapor pressures than reflected by the average values.

Bridgeman's surveys included several cars for which differentials between maximum fuel-system temperatures and the atmospheric temperatures of but 13° F. were determined, as compared to an average for all cars of 34° F. This condition was accepted as "best-car" performance. It is considered not unreasonable to expect the automotive industry to market its cars, having similar "best-car" fuel-system characteristics. By modification of Bridgeman's formula to accommodate the "best-car" performance of 13° F. temperature differential at 90° F. atmospheric temperature, a new relationship between atmospheric temperature and permissible vapor pressure of gasoline is developed. This is also presented in Figure 1. This curve suggests practical limits in range of gasoline vapor pressures from 9 pounds to 20 pounds for territorial and seasonal selection.

The following listing compares gasoline-vapor-pressure specifications proposed for properly designed cars with those proposed, and actually marketed, for cars now on the road:

Maximum atmospheric temperature (deg. F.)	Permissible Reid vapor pressures: Present (lbs. per sq. in.)	Permissible Reid vapor pressures: Future (with total proper design) (lbs. per sq. in.)
60	14.5	20.0
75	12.0	16.0
85	10.0	14.0
100	8.0	11.0
110	7.0	9.0

In arriving at an increased fuel supply which would be made possible by universal adoption of correct fuel-system design, the following procedure was followed:

1. 1933 gasoline consumption used as a basis.
2. Selection of present allowable gasoline vapor pressures from Curve A′ of Figure 1, corrected for altitudes.
3. Selection of proposed allowable gasoline vapor pressures from Curve B of Figure 1, corrected for altitudes.
4. Calculation of increased fuel as butanes required to increase present vapor pressures to proposed vapor pressures. This is developed by states and by months.

The data thus developed are consolidated in Table 3. The seasonal grouping used in this table has been arbitrarily selected in order to reduce the bulk of data presented.

The data developed in this paper, summed up, show a possible increase in potential annual gasoline supply by blending of additional butanes into present gasolines of approximately 992,000,000 gallons. This value is 6.4 per cent of the 1933 gasoline consumption. It represents not quite half of the total butanes available from all oil-industry sources not now used in motor fuels. This increase is possible by a general correction of automotive-fuel systems, a trend which it is hoped the automobile industry will universally take.

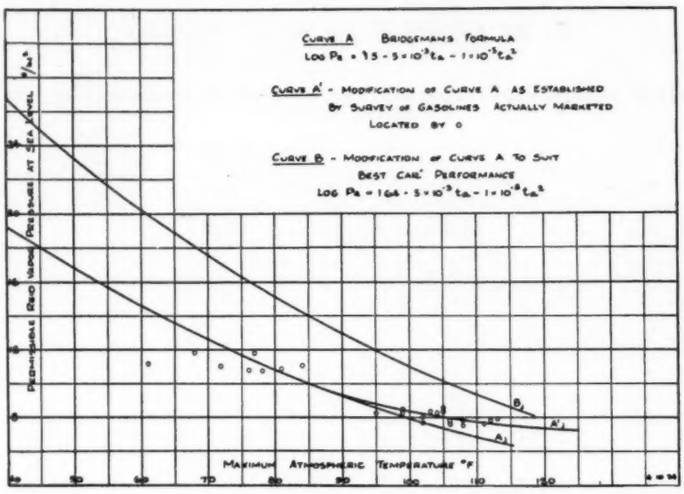

Curve A Bridgeman's Formula
Log Pe = 1.5 - 5×10⁻³ta - 1×10⁻⁵ta²
Curve A′ - Modification of Curve A as established by Survey of Gasolines Actually Marketed Located by o
Curve B - Modification of Curve A to Suit Best Car Performance
Log Pe = 1.64 - 5×10⁻³ta - 1×10⁻⁵ta²
Permissible Reid Vapor Pressure at Sea Level, lb./in²
Maximum Atmospheric Temperature °F
B
A′
A

Figure 1

MOTOR FUEL FROM WEEDS

CALCUTTA, India, May 19.—Dr. S. K. Sen, a Calcutta scientist, claims to have evolved a process for extraction of a cheap motor power spirit from the water hyacinth, a weed pest choking the Bengal watercourses. Experiments in progress for some time have indicated the weed can be collected in central dumps where production plants are situated, the process producing 24 gallons of spirit from a ton of weed, while the residue provides a valuable chemical fertilizer. The motor spirit can be sold at 5 pence a gallon.

GENERAL ORDERS TO TANKERS

General Petroleum, subsidiary of Socony-Vacuum, has just placed orders with the New York Shipbuilding Co. for construction of two new tankers at a cost of approximately $2,000,000. Delivery is to be made in January and February, 1935, and A. O. Woll, manager of General Petroleum's marine department, estimates that the order will afford nearly a year's employment for about 2,000 men as about 80 per cent of the cost goes into labor incident to construction.

The new ships will be 500 feet long, 65 feet of beam and have a depth of 37 feet, a draft of 29 feet and possess a deadweight of 15,285 tons. Cargo capacity will be approximately 127,000 bbls. each. Propulsion will be by double-reduction, geared turbines of 4,000 shaft horsepower, affording a speed of 12½ knots on 30 tons of fuel per day. The tankers will be the first since adoption of a new policy not to increase bottoms but to retire old, replacing them with new ships and this indicates that additional construction will be undertaken at a later date. Some tankers have been recently rebuilt and Socony-Vacuum is at present spending approximately $1,000,000 on small new tankers for eastern inland waters.

CANADIAN PETROLEUM IMPORTS

OTTAWA, Canada, May 19.—Official figures show for February a decline in imports of petroleum, asphalt and their products, the total of $1,827,978 value for the month comparing with a January valuation of $2,191,043. Of the February imports, 82 per cent came from the United States, 10.8 per cent from Peru, and 6.3 per cent from Colombia.

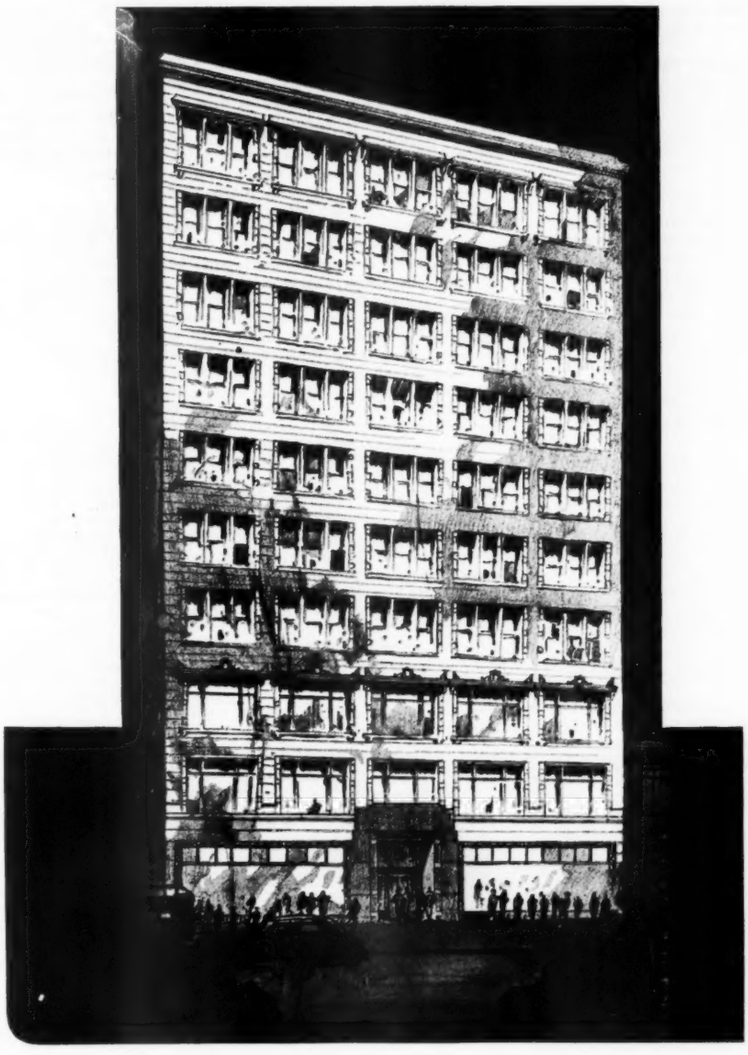
Imports of crude petroleum in February were recorded at 44,368,612 gallons made up as follows: United States, 36,254,842 gallons; Peru, 4,075,513 gallons; and Colombia, 4,038,257 gallons. Exports of petroleum and its products from Canada in February were valued at $24,845 as compared with $71,171 in January.

TABLE 3—DEVELOPMENT OF INCREASED FUEL SUPPLY FOR THE UNITED STATES
(Thousands of gallons)

		November-December, 1933, and January-February, 1934		March-April and September-October, 1933		May-June and July-August, 1933		Totals	
	Car, truck and bus registration (*)	Gasoline consumption (†)	Allowable increase in fuel (‡)	Gasoline consumption (†)	Allowable increase in fuel (‡)	Gasoline consumption (†)	Allowable increase in fuel (‡)	1933 Gasoline consumption (†)	1933 Allowable increase in fuel (‡)
Alabama	207,326	42,269	3,605	44,445	2,550	47,171	2,127	133,885	8,282
Arizona	92,289	21,983	1,495	22,197	876	22,653	419	66,833	2,790
Arkansas	135,000	38,392	3,306	39,982	2,330	42,891	1,861	121,265	7,497
California	1,992,058	415,649	26,881	441,427	18,742	465,815	17,008	1,322,891	62,631
Colorado	266,454	44,239	2,957	53,411	2,673	62,267	1,844	159,917	7,474
Connecticut	334,489	49,949	7,972	81,917	5,812	97,240	5,072	229,106	18,856
Delaware	51,099	11,661	1,274	12,084	796	16,465	678	40,210	2,748
District of Columbia	167,352	32,626	3,046	35,267	2,018	37,922	1,670	105,815	6,734
Florida	291,259	75,997	5,852	66,183	4,119	63,388	3,322	205,568	13,293
Georgia	330,100	65,835	5,533	70,302	4,203	74,450	3,083	210,587	12,819
Idaho	90,260	12,735	1,271	17,762	1,029	21,817	509	52,314	2,809
Illinois	1,464,000	275,408	29,896	323,202	22,456	373,436	18,211	972,046	70,563
Indiana	766,327	122,377	12,568	147,389	9,555	169,343	7,457	439,009	29,580
Iowa	616,325	103,981	10,418	117,989	6,786	133,593	3,974	355,563	21,178
Kansas	517,806	94,627	7,094	113,814	5,581	144,086	4,788	352,527	17,463
Kentucky	295,608	49,298	4,655	54,682	3,243	62,312	2,670	166,292	10,568
Louisiana	231,699	52,849	4,291	53,120	3,291	56,062	2,760	162,031	10,342
Maine	167,714	25,404	3,221	34,366	3,084	47,811	3,273	107,581	9,578
Maryland	306,652	54,915	5,394	63,695	3,894	71,223	3,323	189,833	12,610
Massachusetts	789,788	154,824	16,683	189,995	12,513	221,496	11,112	566,315	40,308
Michigan	1,077,209	199,184	22,461	245,736	17,279	295,377	14,626	740,297	54,366
Minnesota	679,243	103,525	12,529	137,340	9,034	162,085	7,500	402,950	29,063
Mississippi	159,000	34,506	2,858	39,417	2,139	41,752	1,630	115,675	6,627
Missouri	696,439	139,114	12,321	154,226	8,640	167,658	6,241	460,998	27,202
Montana	111,457	14,840	1,409	25,643	1,633	30,365	1,203	70,848	4,245
Nebraska	390,651	55,740	5,378	64,654	3,451	72,963	2,522	193,357	11,351
Nevada	28,855	6,095	503	7,244	405	8,805	327	22,144	1,235
New Hampshire	106,998	15,758	1,664	21,166	1,353	28,947	1,401	65,871	4,418
New Jersey	854,635	194,368	20,037	230,324	14,681	274,093	12,751	698,785	47,469
New Mexico	64,666	14,185	1,120	16,307	855	17,850	680	48,342	2,655
New York	2,208,000	427,973	45,217	509,867	32,876	604,149	31,606	1,541,989	109,699
North Carolina	391,186	77,679	6,622	74,079	5,106	83,702	4,476	235,460	16,204
North Dakota	154,342	18,012	2,163	34,585	2,661	47,068	2,157	99,665	6,981
Ohio	1,554,406	261,305	25,505	294,285	18,512	331,050	16,268	886,640	60,285
Oklahoma	451,726	85,272	6,427	91,030	4,495	98,798	3,740	275,100	14,672
Oregon	244,364	44,768	4,857	55,940	3,963	58,196	2,855	158,904	11,675
Pennsylvania	1,635,019	299,027	28,194	353,035	21,751	396,381	18,502	1,048,443	68,447
Rhode Island	137,402	27,747	3,241	32,893	2,518	39,567	2,253	100,207	8,012
South Carolina	165,707	35,282	3,176	38,059	2,229	38,590	1,832	111,932	7,238
South Dakota	164,783	28,226	2,742	34,123	1,759	37,991	1,287	100,340	5,788
Tennessee	317,977	59,539	5,646	61,029	3,810	64,596	2,958	185,164	12,414
Texas	1,306,536	241,121	14,660	254,828	12,754	272,670	7,883	768,619	35,297
Utah	103,050	14,885	1,149	13,616	791	22,155	694	55,656	2,634
Vermont	73,576	10,392	1,262	14,390	1,106	19,369	981	44,151	3,349
Virginia	330,743	70,339	6,464	78,590	4,499	84,228	3,785	233,457	14,748
Washington	432,059	66,017	7,523	82,292	6,856	88,113	5,295	236,422	19,674
West Virginia	228,559	38,660	3,869	41,544	2,669	47,968	2,449	128,172	8,987
Wisconsin	676,614	99,952	10,579	127,618	8,275	159,920	8,072	387,490	27,027
Wyoming	56,725	8,823	719	11,444	658	15,199	645	35,466	2,022
Total	23,819,537	4,453,580	417,716	5,139,585	312,408	5,841,489	261,783	15,434,654	991,907

Notes: *1933 registration, Automotive Industries, Vol. 70, No. 8. †A.P.I. compilation for 1933 as given by current issues of National Petroleum News. ‡Determined as butanes.

CENTRALIZING THE OIL INDUSTRY OF THE MIDDLE WEST



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Continuous Treating of Oils With Centrifugal Separation More Flexible in Operation

By ROBERT G. WALKER
De Laval Separator Co., New York, N. Y.*

A thorough study has been completed covering the application of centrifugal separators to the continuous acid treatment of petroleum products—based on experimental work dating back about eight years, followed by the installation of commercial units in refineries which are operating satisfactorily at the present, and showing a substantial saving over batch treatment with gravity separation. This study includes practically all oils produced in the refinery, starting with light oils (pressure distillate and kerosene) and including paraffin distillate, side-cut lubricating fractions of higher viscosities, and overhead and residual cylinder stocks.

Due to the limited scope of this paper, only a few of the results obtained in actual plant operation can be mentioned. No attempt will be made to discuss the chemical aspects of acid treatment, as it is realized that the subject is complex and not entirely agreed upon even by the best authorities. This phase of the work is willingly left to the oil technologists, and this paper will deal only with the presentation of such physical factors as oil loss; characteristics of the sludge produced; color, gravity and acidity of the treated oil; and improvements in the economy of acid treatment and subsequent finishing steps.

Centrifugal Separators Remove Sludge

The continuous acid treatment of lubricating oil stocks has been made feasible by the development of highly specialized centrifugal separators which are designed to effect rapid and complete removal of the sludge from the treated stock, in place of the conventional gravity settling of the batch method. But of almost equal importance has been the development of properly designed auxiliary equipment to effect the proper treatment of the oil and at the same time to put the oil in such condition that the sludge can be most efficiently removed by the centrifugal separator. The equipment used is shown diagrammatically in Figure 1.

Operating Sequence Described

The continuous treatment is analogous to the procedure employed in batch treatment—even to the well known "sousing" or addition of water to agglomerate the sludge. While this step is indicated in the flow diagram, its use is optional—being dependent upon the characteristics of the oil treated. Greatly improved results have been obtained in certain instances by the use of this "sousing" step, which accomplished a reduction in the residual acidity of the treated oil and caused a gathering of the sludge, thereby increasing the operating throughput of the centrifuges.

The operating sequence is as follows: The oil is pumped from the raw-oil tank at machine capacity through the tubular steam heater (or tank) and through the proportioning device which maintains the flow of acid into the oil at a predetermined rate. From the proportioning device the mixture passes to the mixing pump, where the acid is thoroughly dispersed in the raw oil. This mixing pump discharges into a reaction tank—preferably a closed vessel—where the volume is regulated to achieve the optimum reaction time. From the reaction tank the mixture of oil and sludge may be passed through the "sousing" mixing pump—where water is added for the aforementioned purposes—and then through a second smaller reaction tank; or it may be sent direct to the centrifugal separators. Each centrifuge discharges three components, viz., the sludge-free treated oil, the heavy viscous acid sludge, and free acid.

*Before A.P.I., Pittsburgh, Pa.

Points of Control

The important points of control affecting the operation are:

1. Quantity of acid.
2. Treating temperature.
3. Degree of mixing.
4. Reaction time.
5. Degree of separation.

Of these the first two are maintained automatically by conventional control devices. The mixing pump is especially designed to give the proper degree of mixing and agitation. The reaction time may vary from a few seconds up to several

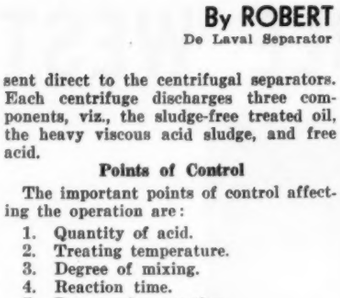


Figure 1

minutes—seldom exceeding 10—and is dependent upon the nature of the oil being treated and, to some extent, upon the degree of agitation in the mixing pump.

In operation the degree of separation is tested occasionally, small samples of the acid oil being taken and subjected to a very high centrifugal force in a small test machine—the whole operation taking about 10 minutes to be completed. With this high-speed test tube centrifuge it is possible to measure quantities of sludge or acid remaining in the oil as small as 0.01 per cent. This unit is of considerable importance from a control standpoint, as it indicates definitely and quickly what results are being obtained. After the system has been adjusted to a single set of conditions, no further attention is required except periodic inspections.

Discharge of the sludge and weak acid is at all times accomplished continuously, so that there is no necessity of stopping the machines for bowl cleaning. Frequent examinations of bowls in service have failed to reveal any accumulation of the semisolid, nonplastic material, asphaltic in nature, sometimes encountered in similar operations. Collecting hoppers on the separators are so designed as to facilitate the flow of sludge so that no backing up of the material is experienced. The machines are shut down for inspection at intervals of a week or so.

Special Feature

In Figure 2 is shown a cross section of the acid-sludge separator bowl, the design of which is the result of extensive laboratory and field work. A special feature of this bowl is the acid nozzles located near the bottom of the bowl which provide for the continuous discharge of free acid. It has been determined that when treating most oils three components are encountered, viz., oil sludge and free acid; and, as these three components divide into three layers, it is necessary to provide for the discharge of each.

In a centrifugal bowl of conventional type means are provided for the discharge of two components, and the presence of a third of different specific gravity would upset the operating stability of the centrifuge. In the type of acid-sludge bowl illustrated any accumulation of free acid is discharged continuously through the acid nozzles; and this type of bowl is, therefore, inherently stable. Once the proper adjustment of discharging-ring size has been made, no further attention is required—and even material fluctuations in throughput rate and quantity of acid will not upset the operating balance.

At the end of a run, when the centrifuge is stopped, the contents drain from the bowl into the casing; and the machine is again run up to speed, which serves to clean thoroughly the discs in the bowl. The machine is again stopped, and the cleaned discs are removed as a unit—the bowl being then submerged in an alkaline solution which, if the unit is to be shut down for any length of time, is followed by a benzol-alcohol wash. For running continuously, or even for overnight shutdowns, no cleaning is necessary.

Continuous Acid Treatment Economical

The continuous acid treatment of lubricating oils, with centrifugal separation, has resulted in marked operating economies. Acid requirements are materially reduced. Due to the more complete separation of the sludge, refining losses are lowered, and the reduced acidity of the separated oil results in further economies

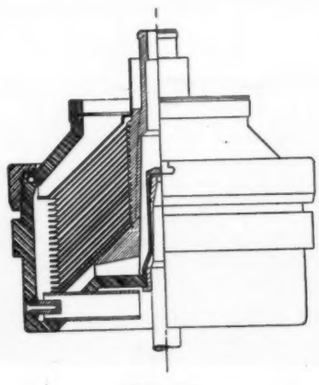


Figure 2

in the neutralizing and finishing operations.

As examples of direct comparisons between conventional batch and continuous treatment the following data are submitted:

CHARACTERISTICS OF STOCK TREATED

Paraffin Distillate from East Texas Crude

Gravity, °A.P.I.	29.5
Viscosity at 100° F., Saybolt seconds	75
Pourpoint, °F.	75/80
Color, A.S.T.M. No.*	3

*Original color at still, 2¼ A.S.T.M., darkened to 3 A.S.T.M. by heating during transfer.

The batch-treating cycle was as follows:

	Time (hours)
Charging agitator, 2,000 bbls.	4
Addition of first acid (1⅛ lbs. per 50 gals.)	⅛
Blow period	⅛
Settling period	13
Drawing first sludge	1
Addition of second acid (4½ lbs. per 50 gals.)	⅛
Blow period	⅛
Sousing water	⅛
Blow period	⅛
Settling period	3
Drawing sludge	1
Transfer period	4
Total cycle	28

The continuous treatment was carried out at a throughput rate of 600 gallons per hour per machine, with the following results:

	Batch	Continuous	
Quantity of acid, lb. 66° Be. per 50 gals.	6	6	4
Tests on acid oil:			
Gravity, °A.P.I.	29.9	29.9	29.9
Vis. at 100° F., Saybolt seconds	73	73	73
Color, A.S.T.M. No.	2¼	1½	2¼
Acidity, mg. potassium hydroxide per gram	1.1	0.62	0.30
Appearance	Heavy traces of sludge	Microscopically free of sludge at 300 diameters	
Tests on sweetened oil (3° Be. lye solution used):			
Gravity, °A.P.I.	29.9	29.9	29.9
Vis. at 100° F., Saybolt seconds	73	73	73
Color, A.S.T.M. No.	2 dark	1½	2
Neutralization No., mg. potassium hydroxide per gram	0.06	0.01	0.01
Color stability (24 hours at 210° F.)	Poor	Good	Good

SLUDGE CHARACTERISTICS

	Batch	Continuous	
Oil loss, per cent of charge	1.7	1.1	0.73
Sulphuric acid in sludge, per cent	23	25	25
Appearance	Hard viscous	Soft, of readily pumpable viscosity	

Subsequent tests on the pressability of the acid-treated distillates showed no differences between the two methods of treating.

In another series of tests an East Texas overhead cylinder stock was treated. Acid-treating rates were varied from 25 to 50 pounds of 66° Be. acid per 50-gallon barrel. Results using 30 pounds of acid in the continuous unit were found comparable to a 50-pound treat in batch treating, and the data are presented on the basis of this comparison.

The characteristics of the untreated East Texas overhead cylinder stock follow:

Gravity, °A.P.I.	23.5
Vis. at 210° F., Saybolt seconds	135
Color, A.S.T.M. No.	*7
Pourpoint, °F.	125/130
Carbon residue, per cent	1.8

*Color, 5 A.S.T.M. at still, darkening rapidly on heating for transfer.

	Batch continuous (50 per cent naphtha dilution)	
Quantity of acid, lb. 66° F. Be. per 50 gals	50	30
Treating temp., °F.	60	60
Refining loss, per cent	30	25
Sludge characteristics	Very hard, viscous	Comparatively soft
Neutralization No., mg. potassium hydroxide per gram	0.95	0.37
Naphtha in sludge, per cent	12	11.0
Color, A.S.T.M. No. (reduced)	5	4
Filter yield, per cent	100	135

Laboratory and plant runs have consistently demonstrated that in a continuous system, with centrifugal separation, a better color is obtained with a given amount of acid, or the same color is obtained with approximately 25 to 50 per

cent less acid. Experience has shown that continuously-treated oil is equally as well refined—even with the lower acid treats—as oil produced in the batch agitator; and, further, that oils of the same color produced by the two methods possess the same dewaxing characteristics in subsequent processing, and yield the same amount of oil of a given color in clay decolorizing.

Factors in Efficiency

The increased efficiency of the acid in continuous treating is attributed to the following factors:

1. Reduced time of contact: In batch treatment the oil is in contact with the sludge for a period of perhaps 4 to 15 hours. In the continuous unit this period is reduced to less than 10 minutes. Prolonged contact with the sludge is believed to result in re-solution of some of the products of reaction.

2. Elimination of air contact: Continued contact with air during the blowing periods tends to darken the treated oil. In the continuous unit, agitation is accomplished by mechanical mixing.

3. Degree of dispersion of acid: Accepting the theory that the reactions taking place during acid treatment are surface reactions, then dispersion by mechanical means is certain to be more complete than that achieved by the cruder diffusion with air agitation—presenting more surface by greater division of the acid.

The acidity of the oil after centrifugal separation is much less than that of the acid from batch agitators. In gravity settling rarely is a batch treat made in which all traces of pepper sludge are removed. In addition, weak acid—resulting from "sousing" water—is finely dispersed in the oil, and separates reluctantly. In centrifugal separation both of these acid-bearing materials are removed, except for a trace, and a substantial reduction in the amount of caustic or other neutralizing agents is effected.

To demonstrate this point Table 1 gives a typical series of samples taken from batch treatment and parallel treatments in the continuous unit. The sediment shown represents the total residue thrown out centrifugally in the high-speed test-tube centrifuge referred to previously.

TABLE 1—COMPARISON OF BATCH TREATMENT AND PARALLEL TREATMENT IN CONTINUOUS UNIT

Residue in samples (per cent by volume)

Sample No.—	Batch	Continuous	Neutralization No.
Run 17-A	....	0.01	0.25
Batch 7080	0.27	....	1.1
Run 17-B	....	0.02	0.31
Batch 7081	0 21	....	0.96
Run 17-C	....	0.02	0.29
Batch 7083	0.17	....	0.72
Run 17-D	....	0.04	0.36
Batch 7084	0.24	....	0.89

Likewise, due to the more complete separation of acid and oil when centrifugal separation is used, the treating loss is in all cases reduced. The extent of this reduction is, of course, dependent upon the oil being handled; but, in general, it can be said that this reduction amounts to about one-quarter to one-half of the treating loss encountered in batch treatment. In the drawing off of settled sludge from an agitator some oil is inadvertently, and in some cases deliberately, drawn in order to remove the last traces of sludge. This loss increases with the viscosity of the oil treated and with the quantity of sludge produced, but is eliminated completely by the centrifuge.

In the continuous unit a partial separation of the weak acid sludge is effected in the centrifugal bowl. The weak acid discharging from the acid nozzles may be collected and fortified or concentrated for reuse.

Advantages Over Batch Treatment

To summarize a large number of tests on oils of widely different characteristics have shown that continuous treatment with centrifugal sludge separation as compared with batch treatment will, in general, show the following advantages:

1. A saving of 25 to 50 per cent in acid requirements.

2. A saving of 25 to 50 per cent in earth or neutralizing agents. (Roughly speaking, on most oils a 25 per cent saving in both acid and earth can be obtained, or a larger saving in acid, say, 50 per cent—assuming that the same quantity of earth will be used).

3. A reduction of treating loss amounting to 25 to 50 per cent of that encountered in batch treatment.

4. The oil produced by continuous treatment is generally more stable than that which is treated in agitators.

5. The sludge discharge from the centrifugal machines is less viscous, and more readily disposed of, than that drawn off the agitators.

6. Greater flexibility of operation.

Ickes Explains Present Situation to Oil Men

(Continued from Page 11)

state of the oil industry when the oil administration was set up last summer. It was clear to all that with crude selling as low as 10 cents a barrel, or even lower, in the East Texas Field, ruin was an immediate possibility for even the mostly strongly financed companies. It was a grave situation that faced the oil administration and a heavy responsibility that was undertaken. Fortunately, there was no lack of willingness on the part of the industry itself to co-operate with the administrator. It was realized that one of the most important, if not the chief, question confronting the industry was the overproduction of crude. With such overproduction running into the hundreds of thousands of barrels a year, in violation of the laws of the states, it is not surprising that the industry as a whole was facing utter collapse. In order to correct this situation, one of the first acts of the administrator was to issue an order limiting the production of crude in an effort to bring supply and demand into as close a balance as possible. From the very first a careful study has been made of this vital problem of supply and demand, with the result that with the demand varying, due to seasonal and other reasons, the administrator at appropriate periods has issued orders governing the production of crude, in his effort at all times to keep supply and demand in balance.

First Benefits

At first the result was magically beneficial. To be sure there had been previous efforts, by voluntary agreement as between the states, and the producers, to balance supply and demand, but these so-called gentlemen's agreements had uniformly failed because a few of the men engaged in the oil industry were found not to be gentlemen. But when the National Government spoke with the authority of Federal law back of it and with the power to impose penalties for noncompliance, there was little disposition, especially at first, to run the risk involved in the further production of "hot oil." However, those who had been trifling with state laws, incapable as they were of self-reformation, were bound to chisel if they could get away with it. In the East Texas Field especially, which was the principal scene of the running of "hot oil," a lawless minority was carefully watched. Some violators were caught red-handed. Quick punishment was meted out to them, with the result that there was a disposition to comply with the Federal regulations, willingly or unwillingly. For a time the running of "hot oil" was almost entirely stopped. Prices began to rise, the industry once more was able to operate at a profit, and it looked as if we were on the high road to a stabilization of the industry that would permit it to operate for the mutual advantage of all.

But the chiselers continued to chisel. They had too long indulged in the pleasant pastime of taking out of the pools oil that belonged to others to give up without a struggle. They called to their aid clever lawyers — lawyers who had trained themselves to view with alarm as a violation of the Constitution any attempt to raise business standards, to enforce the rule of common honesty among business men, or to advance the public interest. It was thought to be worth while at least to test the constitutionality of the law under which the oil administration was operating. Suits brought for violation of the oil code, and the regulations of the administrator thereunder, were defended on the ground of unconstitutionality. One or two decisions, devastating in their effect so far as the stabilization of the oil industry was concerned, were handed down. The hands of the administrator were tied, at least temporarily, with the result that today we are in danger of losing much of the ground that has been gained during the past several months. Under the sanction of injunctional orders, "hot oil" is again being produced in great quantities, and the mandate of the administrator limiting the production of crude oil to meet the market demand is being widely ignored. The danger, of course, is that this reversion to the law of the jungle will grow by what it feeds on until we may revert to the lamentable situation that existed in the oil industry just a year ago.

Limiting Gasoline to Demand

Hand in hand with efforts to limit the production of crude oil to market demand went endeavors on the part of the oil administration, working at all times in happy co-operation with the representatives of the industry to keep the supply of gasoline in line with demand. Plans were being formulated by which the excess supply of gasoline could be taken off the market. Even with crude oil limited to demand, it was seen that the gasoline market would not right itself so as to yield a reasonable profit to the refiners and marketers unless the oversupply, which had been hanging over the market for a long time, should be removed as a menace.

Pacific Coast Situation

An effort has also been made to evolve an agreement which would stabilize the market for the refined products of crude oil. On the Pacific Coast a regional cartel, agreed to by over 95 per cent of the oil industry, was entered into. This has been halted, at least temporarily, as the result of the determination by the Department of Justice that the agreement, as between the various oil interests, was violative of the law. While this question is still pending in the courts, a continued effort is being made, with the co-operation of the Department of Justice and the oil administrator, to work out a modified agreement, which, while avoiding the legal difficulties pointed out by the Department of Justice with respect to the original cartel, may still make it possible to prevent in the future such cutthroat competition in retail prices, as has several times brought the oil industry on the Pacific Coast to the verge of disaster.

It was, of course, inevitable that there should be some interruption to the stabilization of the oil industry. New methods have to be experimented with; new laws must be studied. Whether we wish it or not, we must proceed by the process of trial and error. The oil administration has been aware from the beginning that there are weaknesses in the law under which we have been operating. It has been equally apparent that, in some directions at least, broader powers should be granted. On the basis of our experience, we are now in a better position than we were a year ago to know just what additional legislative authority is necessary in order to help the oil industry to help itself to that degree of stabilization which will make it possible for it to make a reasonable profit without oppressive prices to the public.

Urges Federal Bill

Based upon its experience in operating under the petroleum code, the oil administration has drafted a bill which recently was introduced in the Senate by Senator Thomas of your state and in the House by Congressman Disney, also of Oklahoma. This bill proposes nothing more than to give the administrator such clear-cut powers as will make it possible for him really to control the production of crude oil and keep it down to market

New Wage Differentials Are Announced Made Retroactive to September 1933

WASHINGTON, D. C., May 22.—Minimum wage differentials provided for in Section 4, Article 2, of the petroleum code have been established by Secretary of the Interior Harold L. Ickes, oil administrator. These minima are retroactive to September 2, 1933, and the administrator has ordered that any increases necessary under this order must be paid not later than August 19, 1934.

These differentials shall apply in all production, refinery and pipe line operations, except for drilling and clerical occupations. The differentials or adjustments in these occupations shall be made in the following manner:

"In those occupations which in May, 1929, the regular full time hours of labor were less than 48, an equitable adjustment will be made by paying for 36 hours work, 85 per cent of the regular full time weekly earnings as of May, 1929; where the regular full time hours of labor were at least 48, but not more than 56, an equitable adjustment will be made by paying for 36 hours work, 80 per cent of the regular full time weekly earning as of May, 1929; where the regular full time hours of labor were in excess of 56, but not more than 63, an equitable adjustment will be made by paying for 36 hours work, 75 per cent of the regular full time weekly earning of May, 1929; where the hours of labor were in excess of 63, but not more than 72, an equitable adjustment will be made by paying for 36 hours work, 70 per cent of the regular full time weekly earnings of May, 1929; where the regular full time weekly hours of labor were in excess of 72, an equitable adjustment will be made by paying for 36 hours work, 65 per cent of the regular full time weekly earnings of May, 1929, provided, however, that in no case shall the hourly rates be less than those established in Article 2, Section 1 of the code."

In all clerical occupations and in marketing operations, except for retail filling or service stations, an equitable adjustment of the differentials between the rates for skilled jobs and the minimum rates established in the code shall be made in the same manner, except that these latter classes of employes may work 40 hours per week.

It is declared that the provisions of this order shall not be applicable to employes employed exclusively on stripper well properties in view of the fact that hour and wage limitations applicable to employes on such properties will be prescribed in a later regulation to be issued by the administrator; "provided, however, that where definite hourly limitations are in effect on any such properties which hourly limitations correspond to those prevailing prior to the adoption of the code in a manner similar to relationships hereinabove set forth. This order shall have full force and effect until superseded by such subsequent regulation.

Nothing contained in this order shall be deemed to amend or otherwise impair the order of the administrator on March 20, in which minimum wages for skilled labor on drilling operations were set up."

demand. If enacted into law, the bill will also give that degree of permanency to the oil administration that I am sure we are all now convinced it should have. I believe that practically all of us have finally reached the conclusion that the Federal Government owes a duty to the country to prevent further wasteful exploitation of this essential and irreplaceable natural resource. We are all in accord, are we not, that the question of the proper conservation of oil is not a debatable one? And if we accept that proposition as a premise, we are driven to the inevitable conclusion that the Federal Government must henceforward give life and form and substance to the principle of oil conservation.

There is nothing revolutionary to the pending bill that I have referred to. Basically, it seeks to co-ordinate the efforts of the states and the industry. Broadly speaking, it does not propose to give any regulatory powers to the oil administrator that he was not intended to have under the petroleum code. The bill simply proposes to give these powers in a more effective way. We believe that this bill will stand any test of constitutionality. If enacted into law, the administrator will be in a position to proceed forthwith to enforce remedial regulations looking to the control of the supply of crude oil. Oil and its products are produced and moved throughout the length and breadth of the land. To solve a problem national in scope, national co-ordination is absolutely essential. Granted the powers set forth in the bill, the present disturbed situation in the oil industry will be found to be only a temporary, if unfortunate, interruption of the orderly process of restoring stability to the oil industry.

Opposition Branded

The chiselers, the "hot oil" gentlemen, those misusers of the term "independent," state and local officials, fortunately few in number, who fear loss of power or interruption of opportunities for questionable practices, are working day and night to defeat this beneficent measure. They are causing letters and telegrams to be sent to members of Congress in opposition to this bill. They are, as usual, misrepresenting the facts. They have lined up with them some innocent but misguided persons who honestly believe the oil industry should be permitted to plunge headlong to its own destruction.

The public interest and your own enlightened self-interest are both to be served by the enactment of this bill. If it should fail to pass at this session of the Congress, the situation may get out of hand again before the Supreme Court will have had an opportunity to overrule those decisions of the lower courts that have already created such havoc, assuming that the Supreme Court will overrule those decisions.

This my first visit to the heart of this great oil region is one that I will always remember with pleasure. I came here for two reasons. In the first place, I wished to give you some account of my stewardship as your administrator. In the second place, I wanted to explain this oil bill to you in the hope that its merits would so appeal to you as to call for your enthusiastic support. Incidentally, it seemed an opportune time to present myself as "Exhibit A" of the oil administration to the constituency of that administration. At the same time, I wanted to look into the eyes of the men who constitute in such large measure the oil industry. If you have experienced half the pleasure and satisfaction in this personal contact with the oil administrator that he has found in meeting such a representative part of his constituency, my trip to Tulsa will not have been in vain.

MYRON GILBERT IN CHARGE

Myron Gilbert has been placed in charge of the 500-bbl. skimming plant operated by R. E. Youker, as the Youker Refining Co., at Lost Springs, Kans. O. A. King has been selected as superintendent. The plant is operating on crude produced in the Lost Springs area.

Effect of Treatment on Tubing Corrosion

(Continued from Page 14)

life of one year would be required to justify this expenditure.

Table 3 has been prepared to show the analysis of the brine produced by the five test wells.

The treatment was started in the spring of 1932, and was continued from time to time until January, 1934. The method of conducting the test was first to dissolve the solid alkali in a 55-gallon drum of water on the derrick floor of each well; and, second, to pour the required amount of treatment down the casinghead of each well three times a day.

TABLE 3—ANALYSIS OF BRINES FROM TEST WELLS

Well	A	B	C	D	E
Ion concentrations—	(Parts per million)				
Na plus K	22,600	27,200	38,100	22,500	23,150
Ca	1,984	2,936	1,944	3,984	4,096
Mg	1,400	1,615	825	975	960
Cl	42,000	51,600	64,600	44,000	45,400
M CO_3	925	426	646	158	304
SO	0	0	0	0	0
H_2S	0	0	0	0	0

The success of the treatment was followed through a comparison of the frequency of tubing failures before, during, and after the test. The condensed history of each well as regards test details is given in Table 4.

TABLE 4—HISTORY OF TEST WELLS BEFORE AND DURING TREATMENT

Well "A"

(110 joints, Class A, 2-in. wrought-iron tubing—installed 5-10-24)

Days to first failure	2,491
Days between first failure and start of treatment	773
Average days between failures at start of treatment	59.4
Period of treatment (days)	155
Treatment: 10 lbs. of 76 per cent sodium hydroxide daily for 57 days. No treatment for 18 days. 4 lbs. sodium carbonate daily for 80 days.	
Average days between failures during treatment	16.0
Average days between failures for next 60 days after treatment stopped	30 0

Well "B"

(105 joints, Class B, 2-in., Grade C copper-bearing steel—installed 11-14-30)

Days to first failure	145
Days between first failure and start of treatment	762
Average days between failures at start of treatment	40.1
Period of treatment (days)	165
Treatment: 10 lbs. of 76 per cent sodium hydroxide daily for 67 days. No treatment for 18 days. 4 lbs. sodium carbonate daily for 80 days.	
Average days between failures during treatment	149
Average days between failures for 43 days after treatment stopped	14.3

Well "C"

(110 joints, Class B, 2½-in., Grade C, external upset steel—installed 5-31-31)

Days to first failure	97
Days between first failure and start of treatment	164
Average days between failures at start of treatment	16.4
Period of first treatment (days)	114
Treatment: 12 lbs. of 76 per cent sodium hydroxide daily for 97 days. 18 lbs. of 76 per cent sodium hydroxide daily for 17 days.	
Average days between failures during first treatment	13.5
Average days between failures during next 343 days of no treatment	21.4
Period of second treatment (days)	167
Treatment: 10 lbs .of 76 per cent sodium hydroxide daily for 75 days. 8 lbs. of sodium carbonate daily for 92 days.	
Average days between failures during second treatment	19.3

Well "D"

(110 joints 2½-in., Class A, Grade C, external upset steel—installed 1-29-29)

Days to first failure	840
Days between first failure and start of treatment	497
Average days between failures at start of treatment	82.5
Period of treatment (days)	109
Treatment: 8 lbs. of sodium-carbonate solution daily for 109 days.	
Average days between failures during treatment	62

Well "E"

(110 joints, 2½-in., Class A, upset-end wrought iron—installed 8-11-30)

Days to first failure	566
Days between first failure and start of treatment	468
Average days between failures at start of treatment	29.2
Period of treatment (days)	133
Treatment: 8 lbs. of sodium-carbonate solution daily for 133 days.	
Average days between failures during treatment	26.4

Results of Chemical Treatment

Inspection of Table 4 shows the results which were obtained from these tests of alkaline solutions to stop subsurface corrosion.

It will be noticed for well "A" the average days per failure before treatment was 59.4. This value declined to 16.0 during the course of the treatment. After treatment it rose again to 30.0. Apparently, in this case, the treatment was of no benefit.

For well "B" the average days per failure before treatment was 40.1. This value rose to 149, a marked increase during treatment. Immediately after treatment stopped this average fell to 14.3 for the next 43 days.

The treatment was conducted on well "C" during two periods. The average days per failure before the first treatment was 16.4. This value dropped to 13.5 during the period of the first treatment. Between the first and second treatment 343 days elapsed. During this time the average days per failure rose to 21.4. During the second period of treatment the average days per failure declined to 19.3.

Well "D" experienced an average of 82.8 days per failure before treatment, and an average of 62 days per failure after treatment.

Well "E" experienced an average of 29.2 days per failure before treatment. This fell to an average of 26.4 days per failure during the period of the treatment.

It will be noticed that for four of the five wells the average days per failure during the treating period was lower than the average before treatment started. In one case, that of well "B," there was a marked increase in the days per failure. In two of the three cases where test results could be followed after the treatment was stopped, the average days per failure rose above the same value for the period of the test. For the third case, that of well "B," the average after treatment was lower than during the treatment. From these results, using the average days per failure as the criterion, the treatment was not successful for four out of five cases.

Conclusion

From the test results obtained on these five wells, it is concluded that the alkaline treatments were of no value in decreasing the fluid corrosion rate. These conclusions apply only to the particular methods used for conducting the treatment, and do not condemn it in principle. The idea of depositing a protective layer of calcium carbonate on the well equipment has merit, and may be developed in the future as a worth-while process for the protection of oil field equipment.

Tankers Being Used For Oil Storage

(Continued from Page 12)

desired, the boats could be floated again and pressed into transportation service.

Solved a Problem

Use of the tankers has solved a problem which the company faced in providing adequate storage and other facilities for handling the production of the fields. Erection of large tankage under such conditions as exist in these maritime operations would have been a difficult and costly undertaking, and provision of pumping equipment for handling the oil would have entailed considerable expenditure. There is no solid ground around any of these fields and several are miles out in the open water, where winds, waves and tides are a serious handicap. All equipment and structures must be set up on piling foundation, and even a 1,000-bbl. tank requires thirty 50-foot piles.

As the tankers were small, out of date, and destined to be discarded, their diversion to their present service involved no important cash outlay, and at the same time put them to profitable use, furnishing easily provided, adaptable and practical storage and loading facilities.

There is a rather interesting story attached to the history of the Tampico, now stationed at the Caillou Island Field. This boat originally was a prison ship engaged in transporting convicts from France to Devil's Island. It was built by the French government in 1900 as the France Marie. In those days it was a two-masted sailing vessel, that being before steam had come into general use. Later it was replaced by steamships and for a very small price was acquired by the Texas Co. and renamed.

It was then that the masts were removed, steel compartments or bulkheads were built in the hulls, occupying the space where formerly the loads of unfortunate convicts were crowded for their dreaded long trip from which few returned, and otherwise the boat was reconditioned and equipped for oil transportation. The entire cost was reported as being less than the price of a modern steel storage tank.

While the Tampico never was used as a tanker under its own power, not having any engines, it was in continuous service in tow as a barge in coastwise movement of oil for many years. Then when production was developed at Caillou Island and the need for storage facilities arose there it was towed to that field for a final resting place.

The pumps on the Tampico, which now are used for the loading and unloading of oil, are the same equipment as installed by the French government, and to a large extent the other parts of the ship, the furnishings and fittings are those originally provided. It now contains, like on the other boats, a small power plant, electric lighting system and radio broadcasting and receiving equipment for communication with the company's other fields and headquarters.

Maritime Field Difficulties

One of the many problems faced by the Texas Co. in the development of these maritime fields was that of providing an outlet for the production. Located many miles across marsh land and open water, the fields were inaccessible to pipe lines, and at the same time, although the fields were adjacent to the Gulf of Mexico, the water was so shallow as to limit hauling to barges and boats of shallow draft.

Due to the long haul to the company's refinery at Port Arthur or to the nearest point of loading, the use of barge transportation, considering the comparatively small loads, was impractical. The only other recourse was to load tankers out in the Gulf, stationing the tankers as close in as depth would permit and then hauling the oil out to them in sea-going barges.

The West Lake, the storage tanker stationed in the pass which is the entrance of Terrebonne Bay into the Gulf, serves as the relay for the loading of the tankers. Because of shallow water, the outward slope of the ocean bed being very flat and gradual, the tankers to be loaded cannot come within several miles of the nearest mainland, so the oil which has been accumulated in the West Lake from the various fields is loaded into sea-going barges and towed out to the waiting tankers.

The location of the West Lake is at the nearest point to which the loading tankers can come. The Caillou Island Field is in the mouth of the bay some 4 or 5 miles to the northeast. Lake Barre is some 9 miles farther inland and northward across the open water of the bay; Lake Pelto is northwestward across the bay; while Leesville is about 20 to 25 miles northeastward from Caillou Island in the marsh land country. The other domes in that area are not producing at this time. Barges pick up the oil from the various fields, take it

to the West Lake, into which it is unloaded and held pending arrival of tankers to move it to the company's refinery at Port Arthur. The shallow depth of the channel across the marsh to Leesville limits barge loadings from that field to about 2,500 bbls. per trip. These barges then stop off Lake Barre on their way to the West Lake and complete their cargo of around 5,000 bbls. from the Louisiana. Larger, sea-going barges in turn load from the West Lake and take the oil to the waiting tankers out in the Gulf.

Exposition Closes With Many Records Broken

(Continued from Page 8)

"2. The limitation of withdrawals from storage.

"3. The limitation of domestic production to consumptive demand, including exports.

"4. That the enforcement of provisions of legislation now pending be placed in the jurisdiction of the Department of the Interior and that adequate penalties for violation of this legislation be included in the Act."

Other Societies Meet

The Exposition was marked by meetings of several other associations and societies. The Petroleum Division of the American Society of Mechanical Engineers held a three-day session starting May 14 and papers on refining, production and transportation of crude oil were presented at the various meetings. These papers were published in The Oil and Gas Journal of May 10.

The Mid-Continent Division of the A. S. M. E. held a special meeting during the week and Hollis P. Porter, consulting engineer, Tulsa, was elected chairman, succeeding H. F. Brindel, of the Gypsy Oil Co., who has been chairman for the past two years.

The other officers elected are: J. M. McGregor, McGregor Engineering Co., Tulsa, vice chairman; John F. Eaton, engineer, Jarecki Manufacturing Co., Tulsa secretary, and H. W. Manley, engineer, Barnsdall Oil Co., was re-elected treasurer.

Vice chairmen for the states in the Mid-Continent section are: V. L. Maleev, Stillwater, Okla.; R. G. Paddock, Fayetteville, Ark., and F. S. Kelley, Jr., Shreveport, La., each vice chairman for the state in which he lives.

Code Administrator Here

The Purchasing Agents Association of Tulsa held a meeting on Tuesday, May 15, with Maj. Stiles M. Decker, representing the NRA administration in discussing the suppliers code. G. A. Thompson, purchasing agent for the Empire Companies, Bartlesville, Okla., presented the buyer's view of the code. O. E. McClatchey, purchasing agent for the Barnsdall Oil Co., presided at the meeting.

A resolution of confidence in the administration of the code was passed after Major Decker had presented his views and others had discussed them.

N. V. V. Franchot, of Olean, N. Y., was chosen "Grand Old Man of the Oil Industry," and A. W. Gordon, Tulsa, was designated "Pioneer of Pioneers." J. S. Follett was elected "Grand Old Man of Tulsa." These ceremonies were held on Thursday and James P. Flanagan of Tulsa presented the medals with these awards.

Marketers, jobbers and dealers met with the refiners during the Exposition to discuss mutual problems. The American Association of Petroleum Geologists heard a report from the Research Committee, and the Tulsa Engineers' Club also met.

Dinner for Foreign Delegates

At the complimentary dinner to the international guests served in the roof garden of the Tulsa Club on the evening of May 15 the following guests were in attendance:

Argentina—Enrique V. Plate, Argentine Government Oil Fields, Buenos Aires; Oscar P. Wegner, Argentine Government Oil Fields, New York City; Mario J. Cueta, representing the Argentine Government.

England—Kenneth M. Leach, Audley Engineering Co., Shropshire.

Colombia—Camilo Gutierrez, Bogota; Rafael Arango, Barranquilla.

France—R. D. King, Abco Petroleum Co., Paris.

Germany—Werner Mueller, Alfred Wirth Co., Ekrelanz; Frederick A. Wirth, Alfred Wirth Co., Ekrelanz.

Holland—A. L. Bouwens, Bataafsche Petroleum Maatschappij, The Hague.

Mexico—Dr. Abel de la Cueva, Department of Petroleum, Federal Government, Mexico City; Enrique O. Chapa, Union Wire Rope Co., Mexico City; Felipe Laso, Explot. de terr. Pet. S. A., Mexico City; Daniel Laso, Petroleo y Sus Derivado, S. A., Mexico City.

Rumania — Nic Stefanescu, Industria Romana De Petrol, Bucharest.

Spain — Ruperto Sanz, Spanish Oil Monopoly, Madrid; Francisco Climent, Spanish Oil Monopoly, Madrid.

Union of Socialistic Soviet Republics—A. C. Schachnasaroff, representing the Soviet Government, Moscow; N. A. Kryssin, representing the Soviet Government, Moscow; K. P. Lavrovsky, representing the Soviet Government, Moscow; N. V. Vannikoff, representing the Soviet Government, Moscow.

Venezuela—Gustavo Toledo, representing the Venezuelan Government, Maracaibo.

The following were invited because they had spent some time in foreign countries: Senator T. P. Gore, P. H. Bohart, B. H. Harlton, R. Hughes, M. M. Kinley, R. T. Lyons, N. K. Moody, C. H. Lieb, F. T. Bostwick, A. M. Blow, J. G. Buell, J. F. Darby, E. R. Filley, H. N. Greis, R. L. Jones, P. C. Lauinger and A. E. Bradshaw.

Deep Sand Development Needed in Eastern Area

(Continued from Page 13)

method. One of the greatest advantages of the rotary method, at least in soft formations, is the speed at which holes can be drilled. I doubt, however, if much time would be saved in the harder formations of the East. Rotary methods are almost compulsory in parts of the West because of the large initial flows of both oil and gas. Unfortunately the eastern operators are not bothered in this way, either. Again, in the East the operators would probably have to import drilling mud for several of the sandy districts. A disadvantage to rotary tools is in the cost of equipment and the number of workmen on the derrick floor. The eastern gas fields, with very few exceptions, are shallow and the equipment necessary to drill the holes can be purchased at a very small cost, in fact, over one-half of the holes can be drilled with drilling machines.

The eastern operators do, however, have trouble in the deep holes when drilling below the Oriskany sand, especially in the Salina beds. These beds are a mixture of soft shale, slate, anhydrite and rock salt. It would seem that a combination rotary and cable tool outfit would be advantageous for these holes. But few of the wells started in southern New York state and northern Pennsylvania have been able to drill this formation and reach their objective, the Medina sand, due, principally, to cavey holes. Many wells have been abandoned in this formation which certainly could have been completed had the contractors used a rotary or combination outfit.

Several methods are used in cementing the 7-inch casing. Three operators use the following methods:

Pennsylvania Power & Light Co. Method

The cementing plug is made of soft wood that will drill up easily, is about one inch smaller in diameter than the casing in which it is to be used, and is 12 inches long. It is equipped with a heavy gasket on the top and bottom of leather or rubber and canvas belting that will fit the casing snug. The gaskets are attached to the plug with nails. The bottom of the plug has a hole in the center 1½ inches in diameter and about two inches deep into which a pine stick, 2 by three inches by 15 feet, rounded at the end, is driven into the hole and nailed. This stick serves as an anchor to prevent the plug from going out of the casing.

After the casing is landed it is picked up from 5 to 8 feet off the bottom and neat cement mixed thin enough to circulate easily and of a quantity to suit the job usually from 30 to 75 bags in Tioga and Potter Counties, is poured into the casing, and the plug put into the casing and forced down 100 feet or so with the bailer and water is then pumped into the casing on top of the plug, forcing the plug down the casing to the top of the cement. After the plug finds the cement, water is continuously pumped into the casing until the plug hits bottom and the cement is forced up on the outside of the casing. The position of the plug is always determined by a pick-up of the bailer, care being taken not to drive the plug into the cement.

After the plug reaches bottom the casing is set down, leaving 15 feet of cement in the casing, which allows water and air to rise out of the cement and insures a rich mixture around the shoe.

Quick setting cement or Portland cement mixed with calcium chloride is used.

This job takes from 1½ to 2½ hours from the time the first cement is poured until the casing has been set back on bottom. The actual labor cost does not exceed $25.

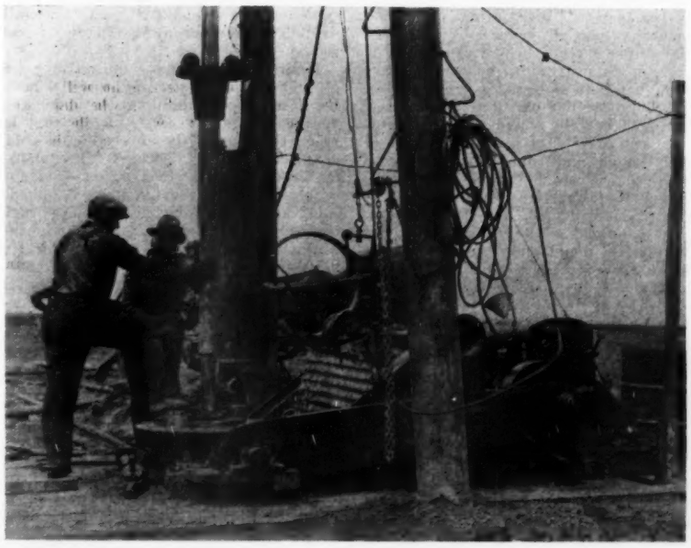
Robinson-Haupt-Chilcote Method

This method pertains to a well plug adapted to follow the cement in the process of cementing a well, where it is desired to cement around the bottom of the casing and to fill all opening and voids between the outside of the casing and walls of the hole as drilled by the cable tool method. Its objects are to provide a plug which will force all the cement out of the casing and up the outside of the casing and be constructed of material which will offer the least possible resistance to drilling after the cement formation has hardened.

The procedure of cementing a well by this method is as follows: Leather discs and cups are used to be sure no cement comes in on top of the plug, as well as to clean the pipe as the plug is lowered, and also to serve as a plunger when the head of water is put on top of the plug. The casing is equipped with a steel shoe approximately three feet in length and inside of this shoe a disc containing two holes is placed which rests on a shoulder just below the threads. This shoe and disc are installed on the bottom of the first joint of casing before putting the casing into the hole. The casing is then run in the hole in the usual manner and lowered to within approximately 20 feet of the bottom of the hole and suspended there. Cement is then mixed to the proper consistency and dumped into the hole until the cavity below the pipe is filled and the pipe filled up 20 or more feet. A plug is then placed in the casing and forced to the top of the cement by means of the bailer, after which sufficient water is run on top of the plug to force it down until it reaches the cast iron disc. This is determined by measurement on the sand line. The cement which was formerly on the inside of the casing has now been forced on the outside between the casing and the walls of the hole. After sufficient water has been run on top of the plug to insure the plug staying on the metal disc, the casing is then lowered slowly until the steel shoe has firmly seated itself on the bottom of the hole. By thus lowering the casing a volume of cement equal to the volume of the pipe lowered has been forced up and around the outside of the casing. The bailer is again run to be sure that the plug is located on the disc. After the cement has had sufficient time to harden the plug and disc are drilled out and the well "drilled in" in the usual manner. Often a small hole is made longitudinally through the plug with a flap valve in order to allow air to pass through the casing and cups when they are too tight.

The Halliburton Method

Clear water or mud is first pumped into the casing and up the outside to make sure there is space enough for cement to follow to the place desired. In certain territories the casing is cemented from top to bottom while in other localities, such as the East, any amount of casing is cemented. The cement should come up around the casing for a distance of at least 100 feet above the casing shoe. Enough cement should be used to fill up caves and crevices, which take up part of the cement. Too much cement cannot be used, but it is possible to use too little. After circulation has been established, the bottom hole plug is placed in the casing. Circulation is not always necessary, especially in cable tool holes where there is no large amount of gas. The bottom plug is made of wood with flexible discs at either end to prevent passage of cement. A swedge nipple with the necessary valves and fittings for the measuring line is then screwed onto the top of the casing and connection made to the cement pump. In the meantime the cement mixer has been set up and the necessary connections made for pump-



Small portable rotary rig of the kind proving popular in drilling wells in the Wichita Falls district. A Ford motor furnishes 125 h.p. on draw works and another portable engine furnishes 95 h.p. on mud pumps

ing the stream of water that mixes the cement and carries the mixed cement to the sump. The mixed cement is pumped into the casing, forcing the bottom plug down ahead of the column of cement. After the lower end of the column of cement reaches the bottom of the casing the plug passes out of the casing and the cement passes upward around the outside of the casing. After a sufficient amount of cement has been pumped into the casing, the swedge nipple or casing-head is removed and the top plug inserted. The swedge nipple is again screwed onto the top of the casing, the necessary connections are again made to the pumps and the stuffing box assembly arranged with the measuring line in place. Fresh water is then pumped into the casing, forcing the top plug and column of cement downward until only a small amount of cement remains in the casing. During this operation the measuring line, on the end of which there is a heavy bob, has been following the top plug and keeping accurate record of its location. As soon as the top plug has reached the proper point the measuring line is pulled up through the gate valve and the gate closed. This completes the cementing job. After the cement has set the plugs are drilled up and the well "drilled in."

The above explains the simple cement job on a string of casing. Other cement jobs of the Halliburton method consist of shutting off bottom hole water, killing a large producer so as to set casing, killing blow-out wells, cementing surface pipe and liners, sidetracking, cementing split casing, multiple stage cementing, and full hole cementing.

Production Method

All of the wells are closed in at the top with high-pressure connections similar to the "Christmas trees" on western wells. The master gate, top gate and two side gates are tested at 5,000 to 6,000 pounds. The two side or producing gate valves are connected by a manifold to the pipe line system. Due to the high pressure and volume, wells could not produce a small amount of their open flow without causing a freeze-up. In the Tioga Field before heaters were arranged many of the wells were opened wide and produced into the pipe lines until the desired pressure was reached and then shut in, this operation being repeated later on when withdrawals from the main line reduced the line pressure below the minimum required. By this method no freeze-ups occurred.

In the Hebron Field one operator attempted to produce through small orifices by the critical flow method to prevent freezing but after a freeze-up caused the line and meter to blow up, a heater was installed. By the critical flow method the delivery must be constant according to the orifice sizes and this would not permit the operator to call for an increased flow on demand.

It was also found that freeze-ups could not be prevented in the winter time. Most operators now have a heating plant and can produce any quantity desired without any freezing. The heating plant is very simple. Steam is generated by a 20 horsepower vertical boiler, which will heat about 15,000,000 feet of gas a day. The steam pressure varies from 30 to 80 pounds. This steam is piped 100 feet or so through a 1½-inch line to the pipe line where it is jacketed between the delivery line and a joint or two of larger casing, generally 8-inch. Recording thermometers are placed on the pipe line just ahead of the steam jacket and the proper temperature, 50° to 60° F. is kept on the gas at all times. Most heaters are so arranged that they get the return hot water from the condensed steam from the jacket, thus using but very little water and causing a saving on boiler fuel.

One operator in the Hebron Field uses a furnace-type heater and a series of regulators. Another operator is now installing a flash heater. Another operator uses an alcohol bottle for preventing freezing after reducing pressures, thus requiring no heating plant. He contends this is the cheapest of all methods, one man handling the deliveries from 6 to 8 wells.

Rate of Flow

Some pipe line companies are fortunate in being able to use but one or two wells at a time and keep these wells wide open into the pipe line where they feed against about 300 to 400 pounds line pressure and require no heating. There is no law in this state like in the western states permitting but a percentage of the open flow to be produced and as the producing formation is a very hard sandstone, it is thought the wells are not being harmed unless they are located very low on the structure. However, salt water has encroached quite rapidly in some Tioga County wells which might have been delayed by producing a smaller proportion of the open flow.

Control is regulated by one operator by the use of orifice plates equipped with two fine tungsten wires welded across the face of the opening in the plate. It is believed that these wires tend to break down the freezing condition on the down-stream side of the plate by the changing of the constant current without changing the delivery. The number of reductions used depends upon the rock pressure of the well, one cut usually being sufficient for wells with rock pressures up to 1,500 pounds. For wells with higher rock pressures, three orifices are being used, each discharging into an expansion chamber which is buried below freezing and which also serves as a drip. If the pressure on the down-stream side of a regulating system is approximately one-fourth the pressure on the up-stream side, the possibility of a freeze-up is reduced and in some cases eliminated. This set-up is also provided with a by-pass for feeding the well at full capacity.

To date, all gas in both fields, including royalty gas, is metered by orifice meters through 4, 6 or 8-inch flanges.

Most operators take a monthly minute pressure or rock pressure test of all wells.

Nothing can be said about cleaning out or bailing wells as none of this has as yet been necessary in either field. Three of the Tioga wells make salt water and this is handled very efficiently in one case by a 1-inch siphon line. The other two wells are about to be abandoned, having been "drowned out" by the salt water. One nearby New York state deep well handles its salt water very efficiently with a Smith-Dunn separator. Only one well in the Potter County Field makes salt water and this is the lowest gas well structurally in the field north of the fault.

Fresh Water

While no salt water has shown up yet in either field except in four wells located considerably down dip which was to be expected soon after production commenced, yet all operators are troubled with fresh water which is considered by most operators to be condensed from water vapor in the gas as soon as pressure is reduced from its shut-in pressure of 200 to 400 pounds. One operator kept very good data on the quantity of fresh water and found that during a period of two months two different wells located three-quarters of a mile apart each produced four gallons of fresh water per million cubic feet of gas produced. This water would cause trouble in the winter time if about 10,000,000 feet of gas a day were produced for a barrel of water also flows into the lines each day. Some operators believe this fresh water gets into the well from casing leaks. It is hoped some operator will make an analysis of both the fresh water produced with the gas and the fresh water behind the casing.

This fresh water is taken care of in different ways. At intervals some operators blow their wells through the producing casing and several barrels of fresh water flow from the well. One operator estimated his flow from a well the first time he blew it to be 50 bbls. This, of course, causes a waste of gas, but as all the water is not carried over to the drips, it is the only way to free the well of water unless a siphon is installed. Only one well is equipped with a siphon for handling fresh water. All of the operators have drips located at the wells and at proper places on the pipe lines where fresh water is blown almost daily in some cases.

It has been quite noticeable with all the producers that the quantity of fresh water varies directly as the quantity of gas produced.

Should the operators be able to control the production from each well so that a high back pressure be held on the sand having their pressure reduction at a restriction orifice outside the well, then the fresh water would be condensed at this point and could be handled by a drip near the restriction orifice. On the contrary if the full capacity of the well is produced, then more of the fresh water will be in the well, which will have to be siphoned out.

Future Development

It perhaps seems strange that no gas or oil was produced below 3,500 feet in the old Pennsylvania oil and gas fields until the fall of 1930. It certainly was not because of an oversupply for it was not many years ago that our eastern natural gas companies urged their customers to heat their houses with coal, thus conserving the rapidly diminishing supply of natural gas for cooking, hot water and lighting purposes. Industrial consumers, if taken on at all, were warned that they were to be shut off at a moment's notice to give preference to domestic consumers. It must be stated that in those days practically no effort was made to obtain gas from deeper horizons although the Oriskany, Medina and other deep sands were known to underlie Pennsylvania as many as 50 years ago. One reason is, of course, that proper equipment for deep drilling was not designed in those days and yet the cable tool equipment is almost identical with that used 30 years ago, except that the engine, boiler, stem, bit, tool joint, band wheel and derrick are larger. Probably the main reason lies in the lack of faith of the operators in geologists. Practically none of the eastern companies had a geologist on their staff while today they occupy positions as heads of companies or heads of land and production departments.

Today we are all looking for new markets, laying long, costly lines to get them, encouraging home owners to install gas heating plants, gas refrigerators and gas incinerators. Industrial consumers are being encouraged to use natural gas for their fuel, the companies showing them it is more economical than coal or electricity. The question now before the industry is "does the present gas reserve warrant this expansion?" Since the deep sand field and the depression came on the industry, practically all drilling in the older eastern fields has ceased.

Many companies have not taken care of their wells by cleaning out and bailing as their economy program during the depression did not allot the funds. It seems that during the unprecedented cold snap experienced February first many of the operators know that they did not have the reserve they thought they had. And, had general business been normal last February, surely some industrial consumers would have been told their supply would be cut off the next morning. The larger distributing companies formerly encouraged the smaller, independent operator to drill and offered as an inducement a fair price and agreed to take a fair amount of their production. This enabled the distributor to keep an adequate supply of their production shut in for emergencies and permitted them to be in position to accept new markets and relieved them of the responsibility of leasing and drilling campaigns. Had not some far-sighted officials in the past adopted this policy there would undoubtedly still be the winter shortage and the discouraging of customers from the use of natural gas for heating and industrial uses.

These statements may seem pessimistic but rather than have a shortage occur, now is the time to build up reserve by more deep sand drilling. Surely, since it has been found that the Oriskany and Medina sands are gas bearing, other pools can be discovered as these sands underlie such a vast area. The small independent producers should be encouraged as they are the principal "wildcatters" and this deep sand production requires, for the most part, wildcat wells. Production, when obtained, should be conserved to guarantee a permanent future to the industry.

Instead of conserving, however, the recently discovered deep sand gas is being rapidly depleted, the gas being used for industrial purposes at prices in competition with cheap coal. The western end of the Tioga Field where withdrawals are the greatest, has already been depleted of about two-thirds of its gas as the initial rock pressure was 1,740 pounds and the present pressure 600 pounds. Surely prices must go up and new fields discovered for the legitimate operator to amortize his large investment in wells, dry holes, rentals, bonuses and pipe lines.

In our three and one-half years of prospecting only two small areas of deep sand fields have been discovered in Pennsylvania. One hundred and seventy-five wells have been started in the greater Tioga-Potter Field district of which 57 are gas wells and 104 are dry holes. There are at present 14 drilling wells.

Pennsylvania Grade Is Progressing Rapidly

(Continued from Page 9)

points of policy in the Pennsylvania Grade oil region. The majority of refiners feel that the standard of material bearing the emblem of the Pennsylvania Grade Crude Oil Association should be such as to minimize the claims of price cutters handling what are labeled as 100 per cent Pennsylvania lubricating oils. Assuming, of course, that the lower price is traceable to a larger yield per barrel of neutral (or 150 viscosity or less).

Whether or not the 150 versus 180 is an economic matter rather than a scientific one will probably remain a point for argument ad infinitum, but it is certain that until a more important development, such as solvent extraction, becomes a live issue, there will be no backing down from the 180 standard set up by the Pennsylvania Grade Crude Oil Association to guarantee the "premium" quality of materials sold under the association emblem.

Of solvent extraction it may be said that the refiners of the Pennsylvania Grade area are waiting for their queue from Pennsylvania State College, where the refining laboratory under Doctor Whitman and Doctor Fenske is producing a tremendous compendium of information concerning the supposed relative efficiencies of solvents which are generally known and additional solvents and precipitants of their own selection.

Lub Competition

At this time considerable is made over the threat of competition from Mid-Continent lubricating oils, and some attempt has been made to fix a relationship between the prices of the Pennsylvania Grade crude oil and Oklahoma 36 degrees gravity crude oil. The following tables show the prices since 1924 of Pennsylvania Grade crude oil in National Transit lines, and Oklahoma oil of 36 degrees gravity:

TABLE 3

Year—	Pennsylvania	Oklahoma
1924	$3 60	$1 62
1925	3 50	1.87
1926	3 51	2.13
1927	2.87	1.38
1928	2.98	1.31
1929	3 69	1.37
1930	2.55	1.23
1931	1 81	0 63
1932	1.88	0.88
1933	1.86	0.62

The following tables may be useful in any attempt to correlate production and "stocks" data to price fluctuations. The tables are complete for the years 1932,

1933, and 1934. About the years 1930 and 1931, the following data will suffice:

	1930	1931	1932
Production	24,243,000	21,893,000	21,520,000
Demand	23,492,000	23,190,000	21,178,000
Differene.	—751,000	+1,297,000	—342,000
Stocks, Dec. 31	6,743,000	6,616,000	6,966,000
Refineries	2,320,000	1,639,000	2,107,000
Pipe lines.	4,423,000	4,927,000	4,859,000
Crude prices	$2.60	$2.02	$1.33

The following tables show the detailed production reports for the various Pennsylvania Grade crude oil fields, their relation to indicated demand, and the variations in available stocks in storage and crude oil prices for 1932, 1933, and 1934:

Refining Is Suffering Under Code Operation

(Continued from Page 13)

fuse to sell; hundreds of other jobbers took on the distribution of products of major companies, in many cases because of larger margins, but more frequently because of other inducements or because of the threat of the company desiring to enter that territory that they would build their own bulk plant and offer additional competition where too much existed already. Many independent refiners that over a period had successfully built up an excellent system of distribution through jobbers suddenly found themselves without a market for their output.

The operation of the code has made it even more difficult for the independent refiners to retain their jobber distribution in the face of major company competition. The independent jobbers, inherently, had always had more confidence in the independent refiners than in the major companies. They had known their business was more important to the independent refiners and they would be better taken care of in case of a price war. Naturally, the independent refiners fostered that belief, but under the code, and especially when it appeared that the proposed marketing agreement would become operative, the salesmen of the major companies were quick to assure those independent jobbers who continued to buy from independent refiners that no longer would their suppliers be able to do anything especial for them in an emergency, and in fact that every company's prices for gasoline sold under contract to jobbers would have to be exactly the same under all conditions. Major company salesmen did not fail to point out that their national advertising cost the jobber nothing—that the independent refiners would have to charge just as much in the future for gasoline as the major company charges for gasoline plus national advertising. In addition, many major companies, that maintained district lubricating oil salesmen calling on industrial trade or selling nationally advertised motor oils to dealers and consumers, agreed that the orders of those salesmen would be filled through the bulk plants of the jobbers if they would take on the distribution of the major company's products, thereby assuring a substantial increase in revenue. Similarly, if the major company happened to have in that district one or more isolated service stations served from a distant bulk plant, the local independent jobber was given the privilege of serving those accounts on a profitable basis.

Major Companies Criticized

The major companies now supply under contract the greater part of the jobber outlets which the smaller refiners formerly served either on the open market or by annual contract. More and more the independents must depend upon the gallonage that is sold through brokers or direct to trackage stations and farm co-operatives. Because of loss of independent jobber business, the volume of open-market buying of gasoline is so small that ordinarily only a comparatively few cars of distress gasoline determine the markets as quoted and set the prices at which the greater part of the gasoline output of many independent refiners is sold. Thus, many independent refiners have been crippled because they have lost not only the most of their jobber contract business, but they no longer have a sizeable spot market.

We now hear the representatives of the major companies saying: "The independent refiners should not be allowed to make so much gasoline; they haven't enough outlets of their own to absorb their production and are obliged to sell on the open market to brokers and price cutters. Their allowable gasoline production should be reduced and ours should be increased; we are not permitted now to make enough gasoline to supply our own stations." But the major companies overlook that many of them obtained their increased share of the market demand by paying exorbitant prices for outlets established by independent jobbers, and by the reckless building of new service stations which were not needed, as well as by the loaning of millions of dollars' worth of new equipment to dealers, making it easy for thousands of people to get into the oil business with scarcely any investment of their own—all of which has burdened the industry and the public with an unreasonably high cost for gasoline marketing. Those same major companies now have the audacity to point with pride and virtue to their large market demand through their controlled outlets, even though because of their extravagant expansion they may have saddled upon themselves for many years to come a marketing expense of as much as 7 cents per gallon; and at the same time they point to the independent refiners and say, "they no longer have a place in the refinery picture because they haven't any marketing outlets of their own. Their allowable gasoline production should be reduced."

Who has a right to say that a man shall not be permitted to refine crude and make gasoline just because he has been unable or unwilling to invest tremendous sums in retail outlets for which there was no economic need? If that thought is carried to its logical conclusion, it will not be long until they will be saying that the independent oil producer should not be permitted his fair share of the crude market demand because he does not have his own pipe lines, refineries and filling stations.

The independent producers need the independent refiners just as much as the independent refiners have needed the independent jobbers. Competition of independent refiners in the crude oil market is important. The independents are the ones who pay a premium when crude oil is scarce and force the market upward when the prices of gasoline and other finished products permit a refining profit. If the independent refiners pass out of the picture, it will not be long until complete control of the industry is in the hands of a few integrated companies that are engaged in all branches of the oil business and thus are not greatly concerned as to whether there is a fair distribution of profits between the different branches.

Deep Sand Possibilities on Cincinnati Arch

(Continued from Page 12)

of Bullitt County the Mississippian is but 200 or 300 feet thick while about 60 miles to the west of there in Hancock County it was drilled through 1,720 feet before the Devonian was reached. In a well drilled at Victoria in Hancock County, about 115 miles, air line, west of Nicholasville in Jessamine County a well started in the Mississippian and did not reach the top of the upper Ordovician until it was 2,140 feet deep; and the Mohawkian which is on the surface in Jessamine County was probably several hundred feet deeper. That means that the formations which are on the surface all over the Blue Grass region, away from the top of the dome, the Cincinnatian of upper Ordovician age, was buried 2,140 feet in 65 or 70 miles from where the upper Ordovician starts its western plunge beneath the Silurian in Nelson County.

To give an idea of this complex geological condition in Kentucky it might be interesting to take an imaginary trip from the top of the Jessamine Dome in Jessamine County across the several younger formations until the axes of the basins on either side of the arch are reached; so we will start such a trip. Going west from Nicholasville we will find that we travel over the old Mohawkian for the first 15 miles and that there is but a slight dip to the west and but little western dip until we have completely crossed the upper Ordovician limestone over which we will still travel west about 35 miles to a point about Fredericktown in Washington County, where we would see the Cincinnatian dip under the Silurian. From the fact that we have traveled these 50 miles from Nicholasville on upper and lower Ordovician we would know that we are still on top of the Cincinnati Arch even not exactly on top of the Jessamine Dome.

At near Fredericktown we would start our real descent down the western monocline of the major arch over the old Silurian rocks which we will find on the surface for the next 10 miles until we find them also dipping beneath the bituminous black shales of the Devonian series. On the knobby, barren, poor, cedar-covered soil of the Devonian shales we will now have to travel another 5 miles until we find it plunging beneath the flaggy limes of the lower Mississippian and then for the next 50 miles we will travel across limes and shales of the New Province, Warsaw, Waverly, St. Louis, St. Genevieve, Gasper, Cypress (sandstones), Golconda, Glendean, Tar Springs and Buffalo Wallow of the Mississippian when, lo and behold, we come to the sandstones and limestones of the coal measures with their flinty shales and see these magnificent limes of the Mississippian dip beneath these younger Pennsylvanian formations. From this point, say about Short Creek in Grayson County, we will travel next for another 50 miles to the approximate location of the axis of the western coal basin, the great western synclinorium of the Cincannati Arch, which deepens as it proceeds north into Indiana and Illinois; but, mind you, we would have to travel another 50 miles due west if we wanted to completely cross this coal basin to the point where we would find the Mississippi limes rising now to the west out from beneath these coal measures of the Pennsylvanian.

Now supposing we take another trip to the east of the Cincinnati Arch after we get back to Nicholasville. In this case we will travel east over the old Mohawkian for about 10 miles until we find it dipping beneath the Cincinnatian of the upper Ordovician on the Kentucky River just above Valley View. Then our trip would continue east over the Cincinnatian for approximately 15 miles until we saw it dip beneath the Silurian and Devonian. Within the next 10 miles these would be found successively dipping also to the east and finally submerge themselves beneath the Mississippian which, in turn and within 50 miles from Nicholasville, would dip beneath the Pennsylvanian. Then for the next 100 miles we would have to travel over the rough mountains and coal measures of the Pennsylvanian and across many anticlines, domes and faults as well as several oil and gas pools. At our destination in Pike County we would probably have to drill 3,000 or 4,000 feet to reach the same Ordovician rocks exposed on top of the Cincinnati Arch; for the average dip of 75 feet to the mile, on most of our trip, will have carried them very deep.

Drilling crew of Louisiana Oil & Refining Co., (Arkansas Fuel Oil Co.) in Southern Rusk County, Texas. Left to right: Gilbert J. Sevier, scout for the Pure Oil Co., Tyler; L. P. Howard, T. J. Reynolds, W. E. Lasyone, V. D. Strand, and D. A. Bahm

Stripper Well Owners' National Organization

Stripper well owners from many fields in the United States met in an all-day session in Tulsa on Wednesday, May 16, and organized the National Stripper Well Association, with William Bell of Robinson, Ill., of the Illinois Independent Petroleum Association, as president; Harold B. Fell, Ardmore, Okla., of the Southern Oklahoma Oil and Gas Association, as executive vice president; W. W. Warner, Nowata, Okla., president of the Oklahoma Stripper Well Association, as vice president, and T. B. Steele of Robinson, Ill., secretary and treasurer.

Resolutions were passed approving the oil control bill introduced by Senator Thomas of Oklahoma.

Plans were formulated to make a survey of production costs in all the stripper well areas for presentation to the oil administration in Washington to fix a wage scale in the old settled fields in the country which can be met in those fields of small crude oil recovery and small profits.

The attendance at the meeting represented 32 district and state associations.

The national body will seek national recognition on the NRA petroleum code as a distinct branch of the producing division of the oil industry.

W. J. Brundred, of the Brundred Oil Corp., Oil City, Pa., presided at the meeting.

Chicago Tank Car Gasoline Market Firm and Prices Better Due to Buying

By SPECIAL CORRESPONDENT

CHICAGO, May 21.—The drying up of offerings, accomplished by means of large-size buying by major companies, has been the most important element in the tank car gasoline market here in some time. As this is written the market is firm to strong and prices are considerably better than in some time. Feeling also is better.

Protests of jobbers against the disorganized condition of tank wagon and service station markets in the Middle West has been one of the most interesting developments in a long time. Meetings have been held in the past few days in half a dozen central states by jobbers, some under the auspices of state associations and some independently. At most of these meetings the ultimatum has been issued in resolutions that the groups would withdraw from all support of or connection with the petroleum code if selling prices were not improved and if they were not granted representation in the administration. As a result conferences have been held between various marketing groups and administration representatives recently.

Expect Action on Cuts

With tank car prices beginning to move up the belief is gaining ground that the many local price cuts will be eliminated at least in part in the near future. The jobbers have charged that many of the prices now ruling constituted sale below cost, and hence in violation of the code. Major company men have countered with the statement that original price cuts were made by others and that their posted prices were merely a meeting of existing conditions.

However, with low octane motor gasoline around 4¼ cents and apparently heading upward and with many predictions being made for substantially higher prices in the next week or 10 days, the talk is becoming more optimistic. Many believe the meetings of the jobbers constitutes a factor helpful instead of harmful to stability, since it is focussing attention on general conditions.

Kerosene

Controversy over kerosene prices has been noted for some time, with some material out at considerably lower prices but with most leading sellers holding firmly and enjoying a good volume at unchanged quotations. Quite a volume of this material is still flowing into the farm country and in some refining districts there is a near shortage.

Distillates

Distillates have been able to hold their own with little difficulty in the market. The opening up of the 1934-35 contract season has been an event of considerable interest in the trade, with prices generally 1 cent above those of last year, so far as tops are concerned. It has been too early to determine the exact reception, but solicitation is more active on contracts than in some time.

Fuels

Heavy fuels are outstandingly strong and hard to find. Prices are unchanged to firmer. Some refiners have trouble in getting enough of this material. Cracking stock buying is brisk. Gas oils are strong.

Lubricants

Lubricating oils are in good call all along the line. Retail motor oil business is supporting this situation in good shape. Jobbers and compounders are fairly good buyers, prices firm.

Waxes

Waxes are strong. Prices are ruling slightly higher here. Despite some addition to stocks recently, there is little sign of easiness and inquiry, domestic and foreign, is good.

Naphthas

Buying of naphthas and solvents continues quite good. There has been continuing indication of cut prices, and a meeting is scheduled for the Hotel Sherman here for May 28 to discuss the general naphthas market situation, open to both sellers and buyers.

Coke

Petroleum coke is quiet and is void of any outstanding market feature.

Crude Oil Prices

(Continued from Page 27)

Effective September 29 in Salt Flat by Shell Petroleum Corp.

Rocky Mountain States

Ilea, light (Sept. 29, 1933)	$.96
Ilea. heavy (Sept. 29, 1933)	.90
Florence, Colo. (June 17, 1933)	.30
Fort Collins and Wellington, Colo. (June 17)	(See Salt Creek prices)
Big Muddy (Sept. 29, 1933)	1.01
Frannie, light (May 1, 1934)	.70
Frannie, heavy (Sept. 29, 1933)	.62
Salt Creek and LaBarge (Sept. 9, 1933)	
See Stanolind Mid-Continent price schedule	
Grass Creek, light (Sept. 29, 1933)	1.18
Grass Creek, heavy (Dec. 15, 1932)	.45
Elk Basin (Sept. 29, 1933)	1.18
Rock Creek (Sept. 29, 1933)	1.02
Dutton Creek (July 5, 1933)	
	See Mid-Continent gravity prices
Lance Creek (Dec. 16, 1932)	.92
Poison Spider (Mar. 5, 1931)	.70
Hudson (June 2, 1931)	.65
Lander (Mar. 5, 1931)	.40
Rex Lake (Feb. 22, 1930)	1.10
Osage	1.08
Lost Soldier (Sept. 30, 1933)	.88
Hamilton Dome (Dec. 16, 1932)	.25
Torchlight (Sept. 29, 1933)	1.18
Greybull (Sept. 29, 1933)	1.18
Pondera	1.18
Sunburst (Sept. 29, 1933)	1.25
Cat Creek, Montana	1.07
Hogback (Sept. 29, 1933)	1.11
Lea County, N. Mex. (Sept. 29, 1933)	.75
Maljamar (Sept. 29, 1933)	.70
Artesia-Jackson (Dec. 1, 1933)*	.75

Note—Salt Creek, Torchlight, Elk Basin, Grass Creek, Frannie, Greybull, Hogback and Iles by Stanolind Oil & Gas Co. Elk Basin, Grass Creek light, Big Muddy, Rock Creek and Sunburst by Ohio Oil Co. Lost Soldier posted by Producers & Refiners Corp. Artesia, Jackson and Maljamar posted by Continental Oil Co. Lea County, effective September 29, 1933, by Humble Oil & Refining Co. and other buyers; Fort Collins, Wellington, Orchard, Florence, Big Muddy, Cat Creek, Rattlesnake and Table Mesa by Continental Oil Co. Osage posted by Arro.

*Continental Oil Co.

North Louisiana and Arkansas

Smackover, Ark. (all grades)	$.70
Tullos-Urania, La. (Jan. 13, 1934)	.87
Nevada, Ark. (Sept. 29, 1933)	.60
East El Dorado (Sept. 29, 1933)	.70
Converse, La. (Mar. 17, 1934)	1.03
Elm Grove, La. (Sept. 29, 1933)	.75
Holly, La. (Mar. 17, 1934)	1.03
Pleasant Hill, La. (Mar. 17, 1934)	1.03
Zwolle, La. (Mar. 17, 1934)	1.03
Champagnolle, Ark. (Mar. 17, 1934)	.81
Lisbon, Ark. (Mar. 17, 1934)	1.03
Stephens, Ark. (Sept. 29, 1933)	.70
Urbana, Ark. (Mar. 17, 1934)	.60
Other fields	(See gravity table)

Note—Smackover: Effective September 29, 1933, Texas Co., Magnolia Petroleum Co., Standard of Louisiana, Louisiana Oil Refining Corp., Gulf Refining Co. and Phillips Petroleum Co. East El Dorado posted by Magnolia Petroleum Co. and Gulf Refining Co., Nevada by Standard Oil Co. of Louisiana. Urania posted by H. L. Hunt, Inc., and Louisiana Oil Refining Co. Converse, Holly, Zwolle and Urbana by Standard Oil Co. of Louisiana; Elm Grove by Simmons Oil & Refining Co.; Pleasant Hill by Standard Oil Co. and Magnolia Petroleum Co.; Champagnolle by Standard Oil Co. and Lion Oil & Refining Co.

Eastern States

TIDE WATER PIPE CO.
(Effective May 1, 1934)

Bradford, Pa.	$2.55
Allegany, N. Y.	2.55

SOUTH PENN OIL CO.
(Effective May 1, 1934)

Pennsylvania Grade Oil in National Transit Lines (Bradford Field)	2.55
Pennsylvania Grade Oil in Southwest Pennsylvania Lines	2.22
Pennsylvania Grade Oil in Eureka Pipe Line lines	2.17
Pennsylvania Grade Oil in Buckeye Pipe Line lines	2.07
Corning Grade Oil in Buckeye Pipe Line Co.'s lines (Oct. 2, 1933)	1.93

PENNZOIL CO.
(Effective May 1, 1934)

Pennsylvania Grade Oil in National Transit Lines:	
Group A	$2.47
Includes Cochran, Franklin, Hamilton and Doolittle districts.	
Group B	2.46
Includes Titusville district.	
Group C	2.46
Includes Turkey and Tidioute districts.	
Group D	2.44
Includes Bear Creek and Porkey districts.	
Group E	2.42
Includes Eldeneau, Bull Creek, Rough Run, Carbon, Dipner, Bredin, McJunkin, Jameson Kennerdell, Emienton, Tiona, Lacy and Kinzua districts.	
Price depends on length of pipe line haul to plant at Oil City.	

PURE OIL CO.
(Effective May 1, 1934)

Cabin Creek, W. Va.	$2.17
Bradford Hollow, W. Va.	2.17
Kelly Creek, W. Va.	2.17

Middle Western States

OHIO OIL CO.
(Effective September 29, 1933)

Lima	$1.30
Illinois (Jan. 5, 1934)	1.13
Princeton, Ind. (Jan. 5, 1934)	1.13
Plymouth	Shut in
Western Kentucky	1.18
Midland, Mich. (Sept. 30, 1933)*	1.02
Oceana, Mich. (Oct. 5, 1933)	.90
Somerset, Ky. (Sept. 30, 1933)	1.33
Hart County, Ky. (Oct. 1, 1932)	1.18

*Posted by Pure Oil Co. Producers Pipe Line Co. pays 5 cents per barrel over Pure Oil Co.'s posted price. Somerset, Ky., crude purchased by Ashland Refining Co., Ashland, Ky., and posted price includes premium. Hart County, Kentucky, crude purchased by Stoll Refining Co. Oceana posted by Old Dutch Refining Co. and Naph-Sol Refining Co.

Canada

Ontario (September 9, 1933):	
Petrolia*	$2.10
Oil Springs	2.17
Turner Valley (Mar. 5, 1934):†	
Clear naphtha	$2.87
Discolored naphtha	2.63
Crude oil, 50 gravity	2.44
Crude oil, 45 to 49.9	2.07
Crude oil, 40 to 44.9	1.50

*Imperial Oil, Ltd. †Imperial Oil, Ltd., and Regal Oil & Refining Co.

Mexico

Panuco*	$1.½

*F.o.b. ship, based on March transactions and exclusive of production and export taxes and bar dues.

California Crude Oil Prices

STANDARD OIL CO OF CALIFORNIA
(Effective September 6, 1933)

Per current purchases of crude oil at the well (unless otherwise specified). (All gravities above those quoted take highest price offered in that field.)

Gravity—	Long Beach	Seal Beach, Alamitos Heights	Huntington Beach	Inglewood	Playa del Rey	Olinda, Brea Canyon	Athens-Rosecrans	Torrance	Richfield	Whittier, La Habra	Montebello	Santa Fe Springs	La Habra-Coyote	Midway-Sunset, Elk Hills, Buena Vista Hills	Lost Hills	Coalinga	Coyote
offered in that field.)																	
14-14.9	$.65	$.65	$.65	$.65	$.65	$.65	....	$.65	$.65	$.65	$.65	....	$.65	$.57	$.57	$.57	$.65
15-15.9	.65	.65	.69	.69	.66	.69	....	.66	.65	.65	.65	....	.65	....	....	....	.65
16-16.9	.66	.65	.72	.73	.69	.73	....	.69	.67	.68	.65	....	.65	....	....	....	.65
17-17.9	.69	.65	.75	.76	.73	.76	....	.72	.70	.71	.65	....	.68	....	....	....	.68
18-18.9	.72	.65	.78	.80	.76	.79	....	.75	.74	.74	.65	....	.71	.61	.61	.59	.71
19-19.9	.75	.65	.81	.83	.80	.82	....	.78	.78	.78	.65	....	.74	.64	.65	.62	.74
20-20.9	.78	.68	.83	.87	.83	.85	....	.81	.82	.81	.66	....	.78	.67	.69	.65	.78
21.21-9	.81	.72	.86	.90	.87	.88	....	.83	.85	.84	.69	$.72	.81	.70	.73	.68	.81
22-22.9	.84	.76	.89	.94	.90	.92	....	.85	.89	.87	.72	.76	.84	.73	.76	.72	.84
23-23.9	.88	.81	.92	.97	.94	.95	$.83	.89	.93	.90	.76	.79	.87	.77	.79	.75	.87
24-24.9	.91	.85	.95	1.01	.97	.98	.86	.92	.97	.93	.80	.83	.90	.81	.82	.78	.90
25-25.9	.94	.89	.98	....	1.00	1.01	.90	.95	1.00	....	.85	.87	.93	.85	.85	.81	.93
26-26.9	.97	.93	1.01	....	1.04	1.04	.94	.98	1.04	....	.89	.90	.96	.89	.88	....	.96
27-27.9	1.00	.98	1.04	....	....	1.07	.97	....	1.08	....	....	.94	.99	.93	.91	....	.99
28-28.9	1.03	1.02	1.07	....	....	1.10	1.01	....	1.11	....	....	.98	1.02	.97	.94	....	1.02
29-29.9	1.06	1.05	1.09	....	....	....	1.04	....	1.15	....	....	1.01	1.05	1.01	.97	....	1.06
30-30.9	1.09	1.10	1.12	....	....	....	1.08	....	....	....	....	1.05	1.09	1.05	1.00	....	1.09
31-31.9	....	....	....	....	....	....	1.12	....	....	....	....	1.08	1.12	1.09	....	....	1.12
32-32.9	....	....	....	....	....	....	1.15	....	....	....	....	1.12	1.15	1.13	....	....	1.15
33-33.9	....	....	....	....	....	....	....	....	....	....	....	1.16	1.18	1.17	....	....	1.18
34-34.9	....	....	....	....	....	....	....	....	....	....	....	1.19	1.21	....	....	....	1 21
35-35.9	....	....	....	....	....	....	....	....	....	....	....	1.23	....	....	....	....	....
36-36.9	....	....	....	....	....	....	....	....	....	....	....	1.26	....	....	....	....	....
37-37.9	....	....	....	....	....	....	....	....	....	....	....	1 30	....	....	....	....	....
38-38.9	....	....	....	....	....	....	....	....	....	....	....	1.34	....	....	....	....	....

Additional Standard Oil Quotations:

Elwood Terrace—F.o.b. ship, 33 degrees, $1.03; 34 degrees, $1.06; 35-35.9, $1.09; 36-36.9, $1.12; 37 degrees and over 1.15.

Newhall—14 degrees and over, 57 cents.

McKittrick and Kern River—14 degrees and over, 57 cents.

Wheeler Ridge—14 to 17.9 degrees, 57 cents; 18-18.9, 58 cents; 19-19.9, 61 cents; 20-20.9, 64 cents; 21-21.9, 67 cents; 22-22.9, 70 cents; 23-23.9, 73 cents; 24-24.9, 76 cents; 25 degrees and over, 79 cents.

Kettleman Hills—33-33.9 degrees, 92 cents; 34-34.9, 96 cents; 35-35.9, 99 cents; 36-36.9, $1.02; 37-37.9, $1.05; 38-38.9, $1.08; 39 degrees and over, $1.11.

The Texas Co. posted in Shiells Canyon, South Mountain and Santa Paula as follows: 14 to 17.9, 57 cents; 3 cents added for each degree up to and including 26-26.9 degrees at 84 cents; then 4 cents added for each degree up to and including 30 degrees and over at $1. Company posts Standard Oil Co.'s Montebello prices in Montebello and North Whittier, and posts Standard Oil Co. prices in Signal Hill, Alamitos Heights, Huntington Beach, Torrance, Richfield and Santa Fe Springs, all effective September 6.

General Petroleum Co. posts Standard Oil Co. prices in Athens, Rosecrans and Signal Hill; Alamitos Heights up to 26-26.9; Santa Fe Springs up to 35-35.9; Richfield up to 25-25.9; Brea Canyon and Olinda up to 25-25.9, and Torrance up to 25-25.9.

Union Oil Co., effective September 6, posts same price as Standard Oil Co. in all fields in which both purchase, excepting that in Athens-Rosecrans, Union Oil Co. posts 21-21.9, 72 cents, and 33-33.9, $1.18; 34-34.9, $1.21, and 35-35.9, $1.24.

Associated Oil Co., effective September 6, posted same prices for the same grades as Standard Oil Co. of California, excepting that in some fields its gravity scale stops as follows: Huntington Beach, 26 degrees and over; Seal Beach and Alamitos Heights, 26 degrees and over; Coyote Hills, 23 degrees and over; Richfield, 25 degrees and over; Torrance, 25 degrees and over; Inglewood, 24 degrees and over; Santa Fe Springs, 35 degrees and over; Midway-Sunset, Elk Hills, Buena Vista Hills, 30 degrees and over. Also Associated pays 52 cents for oil of 11 to 13.9 gravity in McKittrick, Kern Front, Kern River, Midway-Sunset, Elk Hills, Buena Vista Hills and Coalinga.

Second New Producing Area in Patricio County; Bee County Test Is Gas Well Instead of Oil

SAN ANTONIO, Tex., May 21.—The second new producing area for San Patricio County within the past month was opened early in the week when Plymouth Oil Co.'s No. 1 Welder, about 3 miles north of Sinton, came in flowing at the rate of 5½ bbls. of 50 gravity oil per hour through three-eighths inch choke from oil and gas sand at 5,430-34 feet. It is about 7 miles northeast of the other discovery, Atkins & O'Neil and Continental Oil Co.'s No. 1 J. F. Welder which is flowing around 165 bbls. daily. Plymouth's well was formerly drilled to a total depth of 6,602 feet and operators ran a Schlumberger test which showed possibilities of production in the 5,400-foot sand. It was plugged back to 5,200 feet and drilled to its present total depth of 5,434 feet. It is 4,700 feet north of Chiltipin Creek and 900 feet from the west line of the J. M. and F. Portilla Survey.

Bee County

Caesar Oil Co.'s No. 1 Pullin, about 6 miles northwest of Pettus and in the F. Lewis Survey, proved rather disappointing when it failed to make an oil producer, although it did come in for a big gasser. It topped the Pettus sand at 3,007 feet and had sand from 3,007-32 feet and shale and sand from 3,032-34 feet and operators set casing without making a drill stem test. It came in making between 25,000,000 and 35,000,000 feet of gas daily with a pressure of 1,150 pounds on tubing and 1,300 pounds on casing. Some are of opinion the casing was set too high and still believe it had good chances for a producer. The 7-inch casing was set at 3,017 feet.

The well is about 2 miles southwest of Luling Oil & Gas Co.'s No. 1 Ruhmann, wildcat gasser completed last year. Considerable activity around the Caesar well started developing before its completion or its true status was known. Offsetting it to the west Houston Oil Co. was rigging up on No. 1 R. E. Miller and offsetting it to the north Caesar Oil Co. was rigging up on No. 1 Pullin estate. About 2,500 feet to the west of the Pullin producer Caesar Oil Co. had set surface casing on No. 1 R. E. Miller in the northeast corner of the Miller 100-acre tract, but the rig has been moved off this location and will be used in the drilling of No. 2 Miller in the southwest corner of the tract. In the same area Caesar Oil Co. had made location for No. 1 Ruckman and Luling Oil & Gas Co. had staked location for No. 2 Ruckman in the southwest corner of Block 14, of the William Hodge Survey.

Dirks Brothers' No. 1 Skinner-Harrison, about 1½ miles from Tuleta and in Section 10 of the Ragley Subdivision of the Chittim-Miller ranch, was drilling at 440 feet. Heep Oil Co.'s No. 1 J. C. Wood, 5 miles southeast of Beeville, which has been attracting considerable interest during the past two weeks, was coring at 4,497 feet. It showed only water with an odor of oil on a test from 4,353-65 feet. Phillips Petroleum Co.'s No. 1 Morgan, on a block of 13,390 acres in the Eyles Survey, was fishing with total depth of 6,090 feet.

Frio County

Amerada Petroleum Corp.'s No. 2 Halff & Oppenheimer, wildcat about 4 miles southwest of Pearsall in Frio County, was drilling at 3,247 feet. This is to be an Edwards lime test and the third to be drilled by the company on its block of 85,000 acres in Frio and Zavala Counties.

DeWitt County

In DeWitt County, Keystone Royalties' No. 1 L. T. Burns, on a block of 7,000 acres in the I. G. Belcher Survey, was rigging up and preparing to spud.

Duval County

Duval County marked up 10 completions during the week, 9 in the Government Wells Field and 1 in the Eagle Hill Pool. In the Eagle Hill Pool, Shasta Oil Co.'s No. 4 J. R. Foster, in Section 206, was abandoned as dry with total depth of 2,275 feet. In the Government Wells Field, Bridwell's No. 3 C. W. Hahl was completed for 11 bbls. per hour at 2,334 feet. Cox & Hamon's No. 12 State, made 10 bbls. per hour with total depth of 2,257 feet. McKay & Reed's No. 4 State, bottomed hole at 2,271 feet and made 35 bbls. of oil per hour. No. 8 State was completed for 40 bbls. per hour at 2,234 feet. Magnolia Petroleum Co.'s No. 26 Duval County Ranch Co. made 75 bbls. per hour after drilling to a total depth of 2,328 feet. Magnolia's No. 5 J. W. Riley bottomed hole at 2,262 feet and was completed for 5 bbls. of oil per hour. Sun Oil Co.'s No. 60 Weiderkehr made 25 bbls. per hour at 2,311 feet. Humble Oil & Refining Co.'s No. 22 Paul White bottomed hole at 2,274 feet and made 26 bbls. per hour. Texas Co.'s No. 9-A Duval County Ranch was abandoned after drilling to a total depth of 1,501 feet.

Hidalgo County

In Hidalgo County, the Union Sulphur Co.'s No. 1 American Rio Grande Land & Irrigation Co., about 7½ miles north of Mercedes, was drilling at 5,630 feet. Davis & Harrison's No. 1 Lula George, in Porcion 41, Ancient Jurisdiction of Reynosa, was drilling at 1,022 feet. Otto Woods' No. 1 John Lawrence, in Porcion 39, was drilling at 1,050 feet.

Goliad County

Near the North Pettus Field in Goliad County, H. H. Weinert's No. 1 Grady Smith in Survey 25, north part of the county, had the Pettus sand from 3,658-62 feet and at last report was testing.

Jim Wells County

In Jim Wells County, Magnolia Petroleum Co.'s No. 3 Seeligson, in the V. Canales Survey No. 218, drilled to 3,225 feet and came in making 150 bbls. daily. This is the best of the four wells drilled on the Seeligson ranch. The new producer is Magnolia's third well on the ranch and Trinity Drillers drilled one well.

Karnes County

About 4 miles northeast of the North Pettus Field, Karnes County, George Ray's No. 1 Radford in the Nichols Survey, was shut down with total depth of 3,910 feet.

McMullen County

Al Buchanan's No. 1 Hagist, in the north half of the NE Section 18 in McMullen County, topped the Cole sand at 1,195 feet and was coring at 1,240 feet. Surface elevation is 417 feet. Cotulla's No. 1 Gordon in the S half Section 127, had water sand from 2,230-67 feet and was drilling ahead below 2,360 feet. Schumway's No. 5 Shiner, NE Section 66 of the Schumway Subdivision of the Shiner ranch, was coring below 2,095 feet with no show.

Nueces County

Near Robstown, in Nueces County, Diadem Oil Co.'s No. 1 J. C. Mayo, in Section 23, was fishing stuck drill pipe at 4,307 feet.

Real County

About 12½ miles northwest of Leakey, in Real County, H. J. Heartwell Drilling Co.'s No. 2 L. J. Haby in the A.B.& M. Survey No. 175, was drilling at 1,450 feet. This wildcat will be watched with much interest.

Aransas County

In Aransas County and about 2 miles northwest of Rockport, American Liberty Oil Co.'s No. 1 Dietzel, in the John Smith Survey, has been abandoned as dry with total depth of 6,400 feet.

Starr County

About 2,000 feet northwest of the Jeffries Lambeth No. 1 gasser and in south central Starr County, Weekley and McGinley's No. 1 Starr County Cattle Co., showed signs of opening a big gas area after drilling two gas sands. It topped sand at 2,438-49 feet and had top of the second gas sand at 2,455 feet. Late in the week it was waiting on cement to set with total depth of 2,474 feet. About 12 miles north and 3 miles east of Roma, Great Plains Oil Co.'s No. 1 Sanches was drilling at 3,900 feet.

About 8 miles north of the Jeffries Lambeth gas area, McDonald & Campbell's No. 1 C. C. Bowman was drilling at 2,900 feet. Its No. 1 E. A. Peffley in Section 933, was drilling below 2,120 feet.

Webb County

A new sand was discovered in the Laurel Field in Webb County when South Texas Oil Co.'s No. 12 Laurel in Block 4, Survey 270, came in for estimated 20,000,000 feet of dry gas with 600 pounds rock pressure. The other sand in the field is from 2,100-2,200 feet.

Wildcat Operations in Southwest Texas

Week Ending May 19

ARANSAS COUNTY

Company, well, farm name, section and block—	Remarks:
American Liberty Oil Co.'s No. 1 Dietzel, 1,650 ft. from N line and 6,800 ft. from E line of John Smith Sur. in Lot 32, Blk. 4 (2 mi. NW of Rockport)	T.D. 6,400 ft.; abd.

ATASCOSA COUNTY

Texas Pet. Co.'s No. 2 Masterson, 290 ft. from E line and 280 ft. S of No. 1 (7½ mi. S of Sumerset), J. M. Mott Sur. No. 386, Subd. No. 3, B.&G.W. Carruthers estate	10-in. csg. at 20 ft.; 900 ft.; no report.

BANDERA COUNTY

Parkford et al's No. 1 Mrs. R. L. Duke, G.H.&S.A. Sur., Sec. 7	Material.
Peerless O. & G. Co.'s No. 1 Garrison Sur. No. 506, 1,500 ft. from N and 2,700 ft. from E lines of Sur. (8 mi. SW of Medina)	Location.

BASTROP COUNTY

Chas. E. Anderson's (Ca-Tex O. & G. Dev. Co.) No. 1 Pendergrass, 1,343 ft. from NE line, 310 ft. from SE line of 130-ac. tract in Henry Warnell Sur.	S.D. 1,815 ft.
Hinton et al's No. 1 Glass, 2,000 ft. from NW and 1,300 ft. from SW lines of Ferguson estate 239-ac. tract in Henry Warnell Sur.	Top Edwards 1,907 ft.; T.D. 1,909 ft.; showing sulphur water.
Marts & Beavens' No. 1 King, 850 ft. from SW line of farm and survey and 1,000 ft. from NW line of 150-ac. King tract, in Enoch Harris Sur. (3 mi. E of Elgin)	Location.
Three Oil Co.'s No. 1 M. Ingram, H. S. Morgan Sur.	Drlg. 610 ft.

BEE COUNTY

Caeser Oil Co.'s No. 1 Pulling, F. Lewis Sur., 150 ft. from NW line, 150 ft. from SW line of 35-ac. tract	T.D. 3,034 ft.; Comp., 25,000,000 ft. gas; T.P. 1,150 lbs.; C.P. 1,300 lbs.
Dirk Bros.' No. 1 Skinner-Harrison, 160 ft. from N and 990 ft. from W line in NW Section 10 of Ragley Subd. of Chittim Ranch, 1½ mi. from Tuleta	Drlg. 440 ft.
Heep Oil Co.'s No. 1 J. C. Wood, 466 ft. from N and E lines of F. Crane Sur.	Coring 4,497 ft.
Houston Oil Co.'s No. 1-B Neihaus, 330 ft. from N and E line of 100-ac. tract	Set surface csg.
Hilbert Jeanes' No. 1 G. L. Courtney, 1,600 ft. from E line, 330 ft. from S line of tract, G. A. Kerr Sur., 1½ miles NE of Pettus	Rigging up.
McLain et al's No. 2 Laura Weiss, B.&B. Sur., 660 ft. E of No. 1	T.D. 100 ft.; S.D.
Phillips Pet. Co.'s No. 1 Morgan, 4,950 ft. from W, 3,270 ft. from N lines of 13,930-ac. tract, Eyles Sur.	T.D. 6,090 ft.; circulating.

BELL COUNTY

Gus Winston et al's No. 3 Warrick, 100 ft. N of James Scroggins' No. 1 Warrick, in Elijah Ingram Sur.	Black shale 3,198 ft.; no report.

BEXAR COUNTY

Joe Beckley's No. 1 fee, 3,100 ft. W and 150 ft. S at right angles from most northerly cor. of Morales Sur. (3 mi. SW of San Antonio)	Drlg. 705 ft.
A. M. Blume's No. 1 H. A. Ridder, E offset to Blume's No. 2 Ridder, J. M. Barrera Sur.	Derrick blew down.
A. M. Blume's No. 2 Louis Ridder, approximately 3,350 ft. N of R.R., 700 ft. E of W line of J. M. Baerera Sur. No. 58	T.D. 1,630 ft.; S.D.
Keiffer et al's No. 1 Ruiz, SE cor. of 82-ac. tract in F. Rowland Sur. No. 48	T.D. 1,715 ft.; S.D.
Dingman & Russell's No. 1 R. J. Coffey, 1,228 ft. from SE line, 1,086 ft. from SW line of 420-acre tract in Rodrigues Sur.	T.D. 1,326 ft.; P.B. 1,017 ft.; bailing.
E. Gantt's No. 1 A. B. Stephen, 2,650 ft. from SW line, 740 ft. from SE line of P. W. Hays Sur.	Drlg. 520 ft.
Thos. Gorton's No. 1 Edward Jackel, 660 ft. from N line, 800 ft. from E line of tract in J. Ward Sur.	T.D. 500 ft.; S.D.
George L. O'Neill's No. 1 Neimann in Juan Montez Sur. No. 6	T.D. 1,425 ft.; set 300 ft. 4-in. liner.
F. W. Johnson's No. 1 Willow Springs, 150 ft. from N and W lines of lease in B. Munos Sur. No. 151	T.D. 1,940 ft.; S.D.; made salt wtr. and some oil.
Fred A. Perrenot's No. 1 Russell, 750 varas from NE line, 54 varas from NW line of 500-ac. tract in Rodrigues Sur.	T.D. 1,315 ft.; standing.
W. H. Price's No. 1 Barragas, 150 ft. from S and E lines of 60-ac. tract	T.D. 419 ft.; S.D.; to be comp by H. E. Lewis.
W. B. Powell's No. 1 M. Sanner, 400 ft. from E line, 5,280 ft. from N line of 128-ac. tract in Ruiz Sur. No. 47	Drlg. shale 1,020 ft.
Schneider & Reese's No. 1 Claussen	S.D. 1,675 ft.
C. A. Smith's No. 1 Henry Lamb, 750 ft. from N and E lines of Lamb farm, in de la Garza grant	T.D. 982 ft.; show of oil and gas from 968-82 ft.; W.O.C.

(Continued on Page 55)

Deep Rock Pool Extended Toward Southwest; Five Producers Completed in Ward County

By L. E. BREDBERG
Fort Worth Bureau, The Oil and Gas Journal

FORT WORTH, Tex., May 21.—The Deep Rock Pool, in Andrews County, was extended 2½ miles southwest during the week, when Humble Oil & Refining Co.'s No. 1 Kuykendall in Section 24, Block A-46, P.S.L. Survey, filled up 1,000 feet with oil while drilling to 4,265 feet, where it is shut down. Shows of oil and gas were encountered at 4,244 feet. In the same area, but 4½ miles southeast, Fuhrman Petroleum Corp.'s No. 1-B Bonner, in the C NE Section 25, Block 43, P.S.L. Survey, encountered an increase in gas at 4,080-85 feet estimated at 1,000,000 feet. These are the first wells to be drilled in this pool since the Humble Pipe Line Co. laid its line into the area several months ago.

With the good appearance of these two wells, coupled with Humble Oil & Refining Co.'s No. 1 Means, a wildcat 10 miles northeast which gauged 10,800,000 feet of gas, this country is receiving a "hotter" play than any other in the district. The Means test blew out again during the week while cement was being run between the 8 and 10-inch casing in an effort to kill the gas so the well might be drilled deeper. It is bottomed at 2,957 feet.

Fifteen producers and two dry holes were registered in the district during the week. Completions were added in Ector, Glasscock, Howard, Pecos, Ward and Winkler Counties.

Crane County

In Crane County, Gulf Production Co.'s No. 1-D Edwards has been abandoned after encountering sulphur water at 4,998 feet. It is in Section 21, Block B-18, P.S.L. Survey, in the western part of the county. The other wildcat abandoned was Sloan and Lewis and others' No. 1 Daniell, in Howard County, in Section 18, Block 31, Township 1n, T.&P. Survey, 7 miles northeast of Big Spring. Salt water was encountered at 3,220 feet and sulphur water at 3,280 feet and from 3,335-40 feet.

Ector County

York-Harper and others are building derrick for No. 1 Bates, 1 mile southwest of Broderick and Calvert's No. 1 E. F. Cowden discovery well and 2 miles southeast of Honolulu Oil Co.'s No. 1 Kloh in Ector County, which was abandoned last week. The outcome will help to determine in which direction the producing trend from the discovery well is running. So far, four dry holes and one gas well have been drilled within a 3-mile radius from the discovery well.

In the Penn Pool, Humble Oil & Refining Co.'s No. 2 Jones was treated with 1,000 gallons of acid and was completed for a 250-bbl. well. This is the first well to be completed in this pool for several months. It is bottomed at 3,630 feet and is in Section 6, Block 44, Township 2s, T.&P. Survey. In the northern part of the county, two wells were completed. Landreth Production Co. and Llano Oil Co.'s No. 3 Holt, in Section 20, Block A, P.S.L. Survey, was completed for a 150-bbl. well after being shot at 4,339 feet. Their No. 2 Holt, same section, was treated with acid and was completed for an initial production of 110 bbls. in 24 hours.

The wildcat being drilled by C. J. Davidson, in the northwestern part of the county, in Section 10, Block 43, Township 1n, T.&P. Survey, has reached an interesting depth. Late in the week it was drilling below 4,116 feet in white lime with no show of oil or gas being reported.

Ordovician Tests

Humble Oil & Refining Co.'s No. 1 White and Baker, an Ordovician wildcat test in Pecos County, made a drill stem test from 9,457 to 9,529 feet and showed no oil or gas. It is drilling below 9,557 feet. Top of the lower Ordovician was 9,385 feet. It is in Section 44, Block Z, T.C. Survey. Gulf Production Co.'s No. 103 McElroy, another Ordovician wildcat in Upton County, is drilling below 10,269 feet, showing no change.

The Yates Pool had a nice well during the week when M. D. Bryant completed his No. 1 Fred Turner for an initial production of 2,018 bbls. per hour from pay topped between 1,300 to 1,380 feet. It is bottomed at 1,382 feet.

Ward County

In Ward County five producers were registered. California Co.'s No. 2 Durgin in Section 15, Block 34, H.&T.C. Survey, was completed for an initial production of 545 bbls. daily through tubing from pay topped at 2,390 feet. Total depth is 2,519 feet. Same company's No. 5 York was completed for a 44-bbl. well per day from pay topped at 2,362 feet. It is in Section 10, Block 34, H.&T.C. Survey. S. Caprito and others' No. 4 Pure-Bennett in Section 16, Block 34, topped the pay at 2,428 feet and was completed at 2,530 feet for a 532-bbl. well. In Section 16, Block 5, H.&T.C. Survey, Tex-Mex Oil Co.'s No. 2 Llano-Sloan was completed from a plugged back depth of 3,055 feet for an initial production of 297 bbls. daily. In the same section Jack Leidecker and other's No. 1 Shell-Sloan had an increase in oil at 2,992 feet and at 3,050 feet and flowed an estimated 200 bbls. of oil in 24 hours through casing. Three-quarters of a bailer of sulphur water was encountered from 3,050-53 feet and it was plugged back to 3,050 feet.

Upton County

In the Sherk-Lane area, Upton County, Texas Pacific Coal & Oil Co.'s No. 1-C Sherk in Section 1, Block 3, M.K.&T. Survey, pumped 59 bbls. of oil in 24 hours on completion test at 2,631 feet.

Weekly Oil Corp.'s suit attacking the Railroad Commission's order fixing the allowable for the Church and Fields Pool in Crane County has been postponed until after the statewide proration hearing which will be held May 28.

COMPLETIONS IN WEST TEXAS DISTRICT

Ector County

Landreth Production Co. and Llano Oil Co.'s No. 2 O. B. Holt, top pay 4,208-4,338 feet, initial production 62 bbls., total depth 4,338 ft.

Glasscock County

Noble Oil Co.'s No. 1 W. P. Edwards, top pay 2,187-98 feet, initial production 662 bbls. pumping, total depth 2,198 feet, treated with acid.

Howard County

Shell Petroleum Corp.'s No. 4-A Kloh, top pay 2,270-2,342 feet, initial production 43 bbls. per hour pumping, total depth 2,342 feet. Southern Oil Co.'s No. 1 Denman, top pay 2,650-2,818 feet, initial production 70 bbls. in 12 hours' pumping, total depth 2,818 feet.

Irion County

Straughn and Adkins' No. 2 J. Kinser, abandoned, total depth 1,305 feet.

Pecos County

Arthur Adams' No. 1 Masterson, top pay 1,175-1,426 feet, initial production 50 bbls. in 24 hours, total depth 1,426 feet. Messenger and others' No. 1 Rand-Jones, top pay 1,648-1,706 feet, initial production 1,706 feet, initial production 64 bbls., total depth 1,720 feet. Stanolind Oil & Gas Co.'s No. 11-A Tippett. top pay 314-425 feet, initial production 20 bbls. pumping, total depth 425 feet.

Upton County

Powell Gap Oil Co.'s No. 1 J. F. Lane. top pay 2,170-76 feet, initial production 115 bbls., total depth 2,176 feet. Texas Pacific Coal & Oil Co.'s No. 1-C Sherk, top pay 2,475-2,631 feet, initial production 59 bbls. pumping, total depth 2,631 feet.

Ward County

Alpine Oil & Development Co.'s No. 1 Johnson, top pay 2,246-50 feet, initial production 3 bbls., total depth 2,250 feet. California Oil Co.'s No. 2 Durgin, top pay 2,390-2,526 feet, initial production 545 bbls., total depth 2,526 feet; No. 5 York, top pay 2,362-2,526 feet, initial production 44 bbls., total depth 2,526 feet. Caprito and Graham's No. 4 Bennett, top pay 2,428-2,530 feet, initial production 532 bbls., total depth 2,530 feet. Tex Mex Petroleum Corp.'s No. 2 Llano-Owens, top pay 2,505-3,055 feet, initial production 297 bbls., total depth 3,067 feet.

Winkler County

Magnolia Petroleum Co.'s No. 2 Walton, top pay 2,620-63 feet, initial production 30,000,000 feet of gas, total depth 2,663 feet. Sid Richardson's No. 2 Scarborough, top pay 2,773-3,056 feet, initial production 190 bbls., total depth 3,056 feet.

COMPLETIONS IN NORTH TEXAS

Archer County

Bonner Oil Co.'s No. 7-B Abercrombie. lime 1,135-48 feet, production 20 bbls., total depth 1,148 feet, treated with acid. Bridwell Oil Co.'s No. 5-E Falls County School Land, lime 1,089-1,104 feet. initial production 75 bbls., total depth 1,104 feet, treated with acid. Burk Royalty Co.'s No. 2 Pace, dry and abandoned, total depth 1,200 feet. Burns and Long's No. 10-R Wilson, oil sand 1,448-57 feet, initial production 20 bbls. per hour, total depth 1,457 feet. R. W. Busby's No. 1 Anderson, lime 1,417-30 feet, initial production 100 bbls., 25 per cent water, total depth 1,430 feet. Continental Oil Co.'s No. 8-E Falls County School Land, lime 1,079-1,108 feet, initial production 30 bbls. per hour, total depth 1,108 feet, treated with acid. Fain & McGaha's No. 1-A McCroy, dry and abandoned, total depth 560 feet; No. 29 Logan, lime 1,142-60 feet, initial production 200 bbls., total depth 1,160 feet; No. 31 Logan, dry and abandoned, total depth 1,162 feet. Golding and Cochran's No. 1 Lauster, lime 1,309-17 feet, initial production 15 bbls., total depth 1,317 feet.

W. B. Hamilton's No. 27 Abercrombie,

(Continued on Page 51)

Wildcat Operations in West Texas

Week Ending May 21

ANDREWS COUNTY

Company, well, farm name, section and block—	Remarks:
Fuhrman Pet. Co.'s No. 1-B Bonner, 1,320 ft. from N line and 1,320 ft. from E line of Sec. 25, Blk. A-43, P.S.L. Sur.	T.D. 4,185 ft.; gas increase at 4,080-95 ft.
Humble Oil & Ref. Co.'s No. 1 R. M. Means, 660 ft. from N and 660 ft. from E of Sec. 2, Blk. 2-25, P.S.L. Sur.	Blew out again; recemented; T.D. 2,957 ft.
Humble Oil & Ref. Co.'s No. 1 Kuykendall, 1,980 ft. from S and E lines of Sec. 24, Blk. A-46, P.S.L. Sur.	Drlg. 4,270 ft.
Llano Oil Co.'s No. 1 J. E. Parker, 330 ft. from N line, 990 ft. from E line of Sec. 18, Blk. A-44, P.S.L. Sur.	Location.

BORDEN COUNTY

Continental Oil Co.'s No. 1 Johnson, 660 ft. from S line and 660 ft. from E line of Sec. 34, Blk. 32, Twp. 4n, T.&P. Sur.	Rigging up.

BREWSTER COUNTY

Joiner-McIntyre's No. 1, 853 ft. from S, 2,390 ft. from E of Sec. 31, Blk. 352, W. M. Mitchell Sur.	S.D. 1,450 ft.

COKE COUNTY

Wm. Hooper's No. 1 Gaston, 240 ft. from S line and 654 ft. from W line of Joseph Sur. No. 11	Drlg. 1,980 ft.

CRANE COUNTY

Gulf Prod. Co.'s No. 1 Edwards, 330 ft. from S line and 330 ft. from E line of Sec. 21, Blk. B-18, Public School Land Sur.	Abnd. 4,989 ft.
Wahlenmaier Petroleum Corp.'s No. 1 W. P. Edwards, 330 ft. from N and 330 ft. from E of SW cor. of the NE of Sec. 12, Blk. B-23, P.S.L. Sur.	Drlg. 3,500 ft.

CROCKETT COUNTY

J. D. Young's No. 1 Shannon, 330 ft. from W line, 330 ft. from N line of Sec. 35, Blk. 1, G.C.&S.F. Sur.	S.D. 2,635 ft.

CULBERSON COUNTY

Miller Bros.' No. 1 fee, 1,900 ft. from N and 660 ft. from E line of Sec. 31, Blk. 97, P.S.L. Sur.	S.D. 1,065 ft.

DAWSON COUNTY

Ray Albaugh et al's No. 1 John Robinson, 1,320 ft. from N line, 1,320 ft. from W line of Sec. 46, Blk. M, E.L.R.R. Sur.	S.D. 1,750 ft.

ECTOR COUNTY

Atlantic Oil & Prod. Co.'s No. 2 Holt, 660 ft. from N line and 1,980 ft. from E line of Sec. 19, Blk. A, P.S.L. Sur.	Location.
C. J. Davidson et al's No. 1 Cole, 660 ft. from N line and 660 ft. from W line of Sec. 16, Blk. 45, Twp. 1n, T.&P. Sur.	Drlg. 4,160 ft.
Harrison et al's No. 2 Addis, 990 ft. from N line and 2,200 ft. from W line of Sec. 35, Blk. 43, Twp. 2s, T.&P. Sur.	S.D. 3,836 ft.
Harrison et al's No. 3 Addis, 1,650 ft. from N line and 2,200 ft. from W line of Sec. 35, Blk. 43, Twp. 2s, T.&P. Sur.	Location.
Humble Oil & Ref. Co.'s No. 1 Thomas J. Martin, 330 ft. from N and 440 ft. from E line of Sec. 34, Blk. 43, T.&P. Sur.	Cleaning out; T.D. 4,318 ft.

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Salt Water Table Established in Cayuga District; Overproduction Still Unabated in East Texas

By L. E. BREDBERG

DALLAS, Tex., May 21.—The saturated sand horizon from which wells are producing in the Cayuga area, northwestern Anderson County, was again drilled through this week and the salt water table conclusively established, the oil pay zone proving considerably thinner in this field than in the majority of Woodbine sand fields in the East Texas district. Someone has already estimated the field good for an ultimate yield of 500,000,000 bbls., but this can be no more than a wild guess at the present time, and with sand thickness proving less than first anticipated, and unless the field stretches out over a large area surrounding the discovery the field cannot now be considered as a major threat to the industry. It has nowhere near the potentialities that the Van Field in Van Zandt County has for that field has a thicker sand body than any other Woodbine sand field in the district.

The second well to show water is Tide Water Oil Co. and Texas Seaboard Oil Co.'s No. 2 Willis, in the S. Edmondson Survey, approximately three-quarters of a mile due north of the nearest producer. With an elevation of 324 feet it went into the water sand at minus 3,771 feet, going out of the saturated oil sand at 4,089 feet after coring 20 feet of that sand. Water sand was first drilled in the companies' No. 1 Rampy, a southeast extension well. Water sand in that test logged at minus 3,776 feet, but a successful plugging job shut off the water and a good producer was salvaged out of the test which first looked as if it would make only a gasser. Total depth of the Rampy was 4,114 feet. It was plugged back to 4,065 feet to shut off water.

Seven-inch casing has been set in No. 2 Willis at 4,084 feet, and after bottom hole water is plugged off a good well will no doubt be completed thereby extending the producing area to the north.

Eight Tests Drilling

There are eight other tests drilling or preparing to drill in the Cayuga area, and it looks as if no plans, Federal or otherwise, would hold down developments. The most interesting test at present is J. R. Meeker and others' No. 1 Duncan, in the A. Enes Survey. This test will extend the field another half mile northeast if it makes a producer, widening the limits to at least 2½ miles from southwest to northeast. This test topped the Austin chalk between 3,270 and 3,298 feet and is drilling in chalk at 3,500 feet. Elevation is 363 feet. The Pecan Gap chalk was cored from 2,318-50 feet. Correlations with Hill and Hill's well completed last week as over a mile eastern extension, show the Duncan test to be running considerably lower than the well to the southwest.

Roeser & Pendleton Corp.'s No. 1 Bower, in the E. Ritter Survey, will be one of the most interesting tests due to the location being at least 1½ miles northwest of the discovery and will either extend or condemn possibilities to that extent. Another interesting test, approximately 4½ miles southwest of the discovery, is Trinity Farm Co.'s No. 1 N. R. Stewart, in the R. M. Williamson Survey, over in Freestone County. Barnsdall Oil Co.'s No. 1 Loper, in the James Wilson Survey, is approximately 1½ miles due east of the Rampy extension well. If these three widely scattered locations around the discovery prove producers, the field bids fair to make one of the largest in the district, concerning acreage alone.

Four More Locations

Tide Water Oil Co. and Texas Seaboard Oil Co. announced locations for four more tests during the week. There are now five producers in the field, four of which are owned by the joint owners of the block, the companies mentioned.

Byron and Jameson's No. 1 Price, in the Juan Y'Barbo Survey, 2 miles northeast of Blackfoot and approximately 15 miles east of the Cayuga Field, Anderson County, topped the Austin chalk at 4,292 feet and is drilling at 4,325 feet. The Pecan Gap chalk was topped at 3,114 feet. This is the most important wildcat drilling in the county.

Byrd and Frost and others' No. 1 Scott in the Joseph Crawford Survey, near Slocum in the south central part of Anderson County, plugged back to 5,166 feet from 5,500 feet to shut off water, and is drilling out plug. It will core slowly in an effort to make a producer either of oil or gas. This test created considerable excitement a couple of weeks ago when it encountered a good showing of oil and considerable gas, but it drilled into salt water drowning hopes of making a producer unless the plugging back and redrilling is successful.

Daniels Oil & Royalty Co.'s No. 1 Ball in the Aguilera Survey, south of Turlington in Freestone County, is still shut down estimated good for 5,000,000 feet of gas after plugging back to 4,865 feet from 5,003 feet where it drilled into water. It is sure of opening up the third gas producing area in the southern tier of East Texas Counties. The other two are in the Buffalo area of Leon County to the south and the Long Lake area of southwest Anderson County, to the southeast. Shell Petroleum Corp. and others are to complete their No. 1 Lee in the William Cooper Survey, Leon County. It made 10,000,000 feet of gas through one-quarter inch choke with tubing pressure 2,100 pounds. It was plugged back from 6,040 to 5,660 feet but plug is not holding.

Gulf Production Co. made location for a wildcat on a block held by the company 2 miles east of LaRue in Henderson County. Location is on the George Collins farm in the William J. L. Scott Survey.

Tom Woods' No. 1 New Birmingham, in the Levi Jordan Survey, 7 miles southwest of Rusk in Cherokee County, topped the Austin chalk from 4,840-4,978 feet and the Woodbine sand at 5,010 feet. It cored from 5,119-35 feet recovering 1½ feet of chalk, sandy shale and gray sand having a slight distillate odor. It is coring at 5,140 feet with a good oil odor. Surface elevation is 432 feet.

Freestone County

J. E. Milburn of Gladewater, and associates, are preparing to drill on the J. P. Fulton farm around 3½ miles east of the town of Donie in Freestone County, and Walter L. Goldston of Houston, and others, have staked location on the Watson tract in the R. D. Price Survey, approximately 5 miles northwest of Round Prairie, same county. This county has had its share of lease and royalty trading since the various gas areas were uncovered in Anderson, Leon and Freestone County, and is due to receive considerable testing during the next few months, or until dry holes ward off further testing. The recently discovered gasser of Daniels Oil & Royalty Co. helped to create more interest and buying in the county. Another test will no doubt soon be drilled in the vicinity of that gasser.

Each week sees the staking of new locations for more wildcats in the district, and also generally sees the completion of one or more wildcats, usually being abandoned as dry. However, the district is due to remain one of the most closely watched and most active for months to come because of new strikes, either of oil or gas, being made sporadically in various areas.

No report has yet been made in regard to a line being run from the Cayuga Pool of Anderson County, except the connection made by the Texas Pipe Line Co. immediately after the discovery well came in, but with more wells being completed each week. Tide Water Oil Co. is expected to soon announce intentions of building a line out of the pool, probably to connect with the Texas-Empire Pipe Line Co.'s line from the East Texas Field to the Gulf Coast in which Tide Water owns an interest. Laying a connecting line would not consume much time or expense and would give a direct outlet to the coast for wells of the Tide Water Oil Co. and Texas Seaboard Oil Co.

East Central Texas Wildcats

Week Ending May 21

ANDERSON COUNTY

Company, well, farm name, section and block—	Remarks
Barnsdall Oil Co.'s No. 1 W. L. Tubbs, 467 ft. from W line and center of N and S lines of 40-ac. tract, Samuel Edmondson Sur.	Drlg. 820 ft.
Barnsdall Oil Co.'s No. 1 Loper, 467 ft. from N and W lines of 40-ac. tract, 1 mile SW of Cayuga, James Wilson Sur.	Bldg. derrick.
Harry Bass et al's No. 1 J. A. Campbell, 467 ft. from N and W lines of 151.30-ac. tract, James Wilson Sur.	Location.
Pete Burton et al's No. 1 Freeman Baptist Church, 105 ft. due W of NW cor. of W. Chancellor Sur. in center of a 2-ac. tract, W. T. Meredith Sur.	Location.
Byrd-Frost et al's No. 1 Alice Scott, 2,200 ft. from N and 700 ft. from E lines of Joseph Crawford Sur., 1⅛ miles NW of Slocum	Plugged back to 5,166 ft.
Byron and Jameson's No. 1 S. N. Price, 330 ft. from S and E lines of S. N. Price 60-ac. tract, Juan Y'Barbo Sur., 2 miles NE of Blackfoot	Drlg. 3,640 ft.
J. R. Meeker's No. 1 H. H. Duncan, 150 ft. from N and S lines and 419 ft. from W line of 12.97-ac. tract, one-quarter mile NE of Cayuga, A. Enes Sur.	Set csg. 637 ft.
Roeser and Pendleton's No. 1 Virginia Boyer, 467 ft. from E line and 1,347 ft. from S line of 200-ac. tract, Everett Ritter Sur.	Location.
Texas Seaboard Oil Co. and Tide Water Oil Co.'s No. 2 Edens, 1,400 ft. from E line and 2,333 ft. N of S line of Samuel Snider Sur.	Rig up.
Texas Seaboard Oil Co. and Tide Water Oil Co.'s No. 2 Nannie Wills, 1,400 ft. E of W line and 467 ft. S of N line of Wills tract, Samuel Edmondson Sur.	Waiting on cmt. to set; T.D. 4,084 ft.
Tide Water Oil Co. and Texas Seaboard Oil Co.'s No. 1 Lou Ella Horton, 467 ft. from N line and 467 ft. from E line of Horton 105.37-ac. tract, James Wilson Sur.	Location.
Tide Water Oil Co. and Texas Seaboard Oil Co.'s No. 1 S. F. Robertson, 470 ft. from N line and 1,566 ft. from W line of 50.4-ac. tract, Samuel Edmondson Sur.	Location.
Tide Water Oil Co. and Texas Seaboard Oil Co.'s No. 4 Wills, 470 ft. from most northerly S line and 467 ft. from E line of tract, W offset to Hill and Hill's No. 1 Tubbs, Samuel Edmondson Sur.	Location.
Tide Water Oil Co. and Texas Seaboard Oil Co.'s No. 5 Wills, 1,400 ft. from most northerly S line and 467 ft. from E line of tract, W offset to Barnsdall Oil Co.'s No. 1 Tubbs, Samuel Edmondson Sur.	Location.

CHEROKEE COUNTY

A. R. Lewis et al's No. 1 J. Bradford, 1,600 ft. from W line and 200 ft. from N line of 50-ac. tract, J. Laprella Sur.	Drlg. 2,825 ft.
A. F. Richardson's No. 1 P. Wood, 660 ft. from N line, 2,300 ft. from E line of 498-ac. tract, 14 miles E of Jacksonville, on Cherokee-Rusk County line, Ignacio Sanches Sur.	Derrick.

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EAST TEXAS FIELD

Major companies are again busy purchasing leases in the East Texas Field, probably trying to get as many as possible before independents taking advantage of the ability to obtain permits to drill equidistant offsets which allows them to drill almost at will on their tracts, be they ever so small, sink a great number of new wells. Tracts are being bought, not on the acreage or acreage and well basis, but generally on the per well basis, which runs prices of leases up to large amounts. It begins to look as if a much greater part of the field would ultimately be owned by the larger producers than heretofore expected.

Stanolind Oil & Gas Co. has purchased the Alfred lease in the Dance Survey, 99 acres with 10 wells; the Milstead lease in the E. Collard Survey, and R. H. Penny Survey, 83.7 acres with 8 wells, both in Rusk County; and the Ingram lease in the Pastuer Survey, Gregg County, 80 acres with 7 wells, from the Devonian Oil Co. This makes a total of 262.7 acres with 25 wells. Consideration was not given but the per well price will run in the neighborhood of $40,000.

Humble Oil & Refining Co. has also been an active purchaser, new sales, generally of small tracts, being reported each week to this company, helping to increase its lead as the largest producer in East Texas.

Magnolia Petroleum Co. is now producing and developing the some 1,300 net acres and 162 wells recently purchased from the East Texas Oil Refining Co. of Dallas, of which Freeman W. Burford is president. This was the largest deal consummated in the field and

involved over 2,300 acres and 255 gross wells, the former figures being restricted to net acreage held by the company and the latter acreage and wells in which it held all or a part interest. This purchase places the Magnolia Petroleum Co. in third place, Humble coming first and Gulf Production Co. second.

Overproduction in East Texas remains unabated while the Railroad Commission is thrashing out troubles within its forces, the greatest being caused by the commission restricting R. D. Parker's work to East Texas. He was formerly chief supervisor. Whether he will resign, and possibly run for railroad commissioner against Lon Smith has been conjectured by many.

The attorney general's department is busy trying penalty suits against alleged violators and during the week won several cases. These involved by-passing, receiving improperly tendered oil, overproducing and various other violations, and penalties running into several thousands of dollars each.

Van Field

J. D. Wrather's No. 1-A Carter, in the William Daniel Survey, 4 miles northeast of Van, is showing for a 1,500-foot extension. It topped the sand at 2,947 feet and filled over 2,000 feet with oil in four minutes on a drill stem test. The operators are now setting casing on the test before completing. The first hole was lost and the rig skidded to No. 1-A location. It is in the Carroll district, which is the producing acreage held by companies outside of the Van Joint Account, operated by the Pure Oil Co. for five companies.

COMPLETIONS IN EAST TEXAS DISTRICT

North Gregg County

Ambrose's No. 7 George Jones, top sand 3,524 feet, initial production 28 bbls. in 16 minutes through open tubing, total depth 3,602 feet. Amerada Petroleum Corp.'s No. 10 Burnside, top sand 3,514 feet, initial production 40 bbls. in one-half hour through open tubing, total depth 3,541 feet. Arkansas Fuel Oil Co.'s No. 3 D. McKinley, top sand 3,577 feet, initial production 17 bbls. in one-quarter hour through open tubing, total depth 3,597 feet. Clark & Cowden's No. 4 H. Clements, top sand 3,645 feet, initial production 20 bbls. in one-quarter hour through open tubing, total depth 3,688 feet. Empire Gas & Fuel Co.'s No. 10 J. Bender, top sand 3,567 feet, initial production 29 bbls. in one-quarter hour through open tubing, total depth 3,635 feet; No. 20 Taylor Lee, top sand 3,525 feet, initial production 31 bbls. in one-quarter hour through open tubing, total depth 3,582 feet. Fain & McGaha's No. 6 Clements, top sand 3,607 feet, initial production 20 bbls. in one-quarter hour through open tubing, total depth 3,619 feet. Faith Oil Co.'s No. 7 Fenton, top sand 3,704 feet, initial production 36 bbls. in 24 minutes through open tubing, total depth 3,706 feet. Gulf Production Co.'s No. 6 A. P. Neeley, top sand 3,508 feet, initial production 20 bbls. in one-quarter hour through open tubing, total depth 3,534 feet.

Humble Oil & Refining Co.'s No. 7 Castleberry, top sand 3,458 feet, initial production 63 bbls. per hour through open tubing, total depth 3,512 feet; No. 12 W. C. Mackey, top sand 3,594 feet, initial production 37 bbls. through three-quarters inch tubing choke, total depth 3,600 feet. Lucey Petroleum Co.'s No. 5 M. C. Haney and Loeb, top sand 3,525 feet, initial production 15 bbls. in one-quarter hour through open tubing, total depth 3,580 feet. Magnolia Petroleum Co.'s No. 1 Davis, top sand 3,556 feet, initial production 31 bbls. in one-quarter hour through open tubing, total depth 3,591 feet. Sinclair Prairie Oil Co.'s No. 13 Lawson, top sand 3,497 feet, initial production 37 bbls. in one-quarter hour through open tubing, total depth 3,544 feet. Sklar Oil Co.'s No. 3 J. H. Alexander, top sand 3,569 feet, initial production 25 bbls. in three hours' pumping, total depth 3,620 feet. J. R. Smith Properties' No. 5 Doby, top sand 3,488 feet, initial production 75 bbls. in one-quarter hour through open tubing, total depth 3,518 feet.

Stanolind and Simms Oil companies' No. 4 Mattie Lemaire, top sand 3,570 feet, initial production 18 bbls. in one-quarter hour through open tubing, total depth 3,674 feet; No. 5 Lemaire, top sand 3,545 feet, initial production 13 bbls. in one-quarter hour through open tubing, total depth 3,669 feet. W. F. Turner's No. 9 Jones, top sand 3,606 feet, initial production 40 bbls. in 20 minutes through open tubing, total depth 3,660 feet.

South Gregg County

Delta Drilling Co.'s No. 3 Crim, top sand 3,523 feet, initial production 20 bbls. in one-half hour through open tubing, total depth 3,557 feet. Blue Star Oil Co.'s No. 3-X Sabine River, top sand 50 bbls. in 35 minutes through open tubing, total depth 3,551 feet. H. R. Smith's No. 1 Willis Smith, top sand 3,582 feet, initial production 139 bbls. per hour through open tubing, total depth 3,599 feet. Byrd-Frost Oil Co.'s No. 3-A Watson, top sand 3,596 feet, initial production 24 bbls. in one-quarter hour through open tubing, total depth 3,625 feet. Champlin and Bass' No. 7 J. B. Watson, top sand 3,584 feet, initial production 35 bbls. per hour through open tubing, total depth 3,610 feet. DeArman and McMillan's No. 4 Strong and Alexander, top sand 3,666 feet, initial production 80 bbls. per hour through open tubing, total depth 3,674 feet; No. 8 Strong and Alexander, top sand 3,673 feet, initial production 80 bbls. per hour through open tubing, total depth 3,680 feet.

Empire Gas & Fuel Oil Co.'s No. 14 Lockhart, top sand 3,673 feet, initial production 22 bbls. in one-quarter hour through open tubing, total depth 3,680 feet. General Crude Oil No. 9 S. Scott, top sand 3,572 feet, initial production 23 bbls. in one-quarter hour through open tubing, total depth 3,590 feet. Gulf Production Co.'s No. 21 Alexander, top sand 3,515 feet, initial production 75 bbls. per hour through open tubing, total depth 3,540 feet. Hall and Snowden's No. 2 King, top sand 3,535 feet, initial production 30 bbls. per hour through open tubing, total depth 3,552 feet. Hawkeye Petroleum Corp.'s No. 3-B W. Smith, top sand 3,557 feet, initial production 57 bbls. per hour through open tubing, total depth 3,590 feet. Shell Petroleum Corp.'s No. 7-B Bivens, top sand 3,649 feet, initial production 38 bbls. in one-half hour through open tubing, total depth 3,665 feet: No. 37 Watson, top sand 3,595 feet, initial production 45 bbls. in one-half hour through open tubing, total depth 3,655 feet.

Snowden and others' No. 1 Hirsch and Kollman, top sand 3,533 feet, initial production 75 bbls. per hour through open tubing, total depth 3,573 feet. Tide Water Oil Co.'s No. 8 Lacey, top sand 3,558 feet, initial production 11 bbls. in 10 minutes through 1-inch tubing choke, total depth 3,570 feet; No. 5 J. B. Watson, top sand 3,575 feet, initial production 63 bbls. per hour through open tubing, total depth 3,596 feet. Webster Oil & Gas Co.'s No. 1 Register, top sand 3,678 feet, initial production 60 bbls. per hour through open tubing, total depth 3,684 feet. Joe Zeppa's No. 3 M. Charles, top sand 3,646 feet, initial production 60 bbls. in 50 minutes through open tubing, total depth 3,652 feet.

North Rusk County

Ben G. Barnett's No. 1 I.&G.N.R.R., top sand 3,731 feet, initial production 75 bbls. per hour through open tubing, total depth 3,732 feet. Blackstock and others' No. 4 W. P. Brightwell, top sand 3,630 feet, initial production 26 bbls. in 10 minutes through open tubing, total depth 3,660 feet. M. T. Flannigan's No. 4 M. Kennedy, top sand 3,719 feet, initial production 50 bbls. per hour swabbing, total depth 3,735 feet. Gulf Production Co.'s No. 10 A. Laird, top sand 3,519 feet, initial production 40 bbls. in one-half hour through open tubing, total depth 3,611 feet. Lewis Production Co.'s No. 8 Pegues, top sand 3,612 feet, initial production 30 bbls. in 10 minutes through open tubing, total depth 3,664 feet. Sabine Syndicate's No. 6 George Thompson, top sand 3,629 feet, initial production 100 bbls. per hour through open tubing, total depth 3,656 feet. Shell Petroleum Corp.'s No. 3-A T. Wills, top sand 3,665 feet, initial production 62 bbls. in one-half hour through open tubing, total depth 3,730 feet. Woodley Petroleum Co.'s No. 3 George Thompson, top sand 3,664 feet, initial production 30 bbls. in one-quarter hour through open tubing, total depth 3,674 feet.

South Rusk County

A. P. Cary's No. 4 Ras Redwine, top sand 3,530 feet, initial production 155 bbls. per hour through open tubing, total depth 3,652 feet. Deep Rock Oil Co.'s No. 5 W. H. Holland, top sand 3,670 feet, initial production 25 bbls. in 20 minutes through open tubing, total depth 3,730 feet; No. 6 W. H. Holland, top sand 3,690 feet, initial production 25 bbls. in one-quarter hour through open tubing, total depth 3,720 feet. Gulf Production Co.'s No. 10 S. B. Stone, top sand 3,802 feet, initial production 44 bbls. in 20 minutes, total depth 3,806 feet. Humble Oil & Refining Co.'s No. 13 Pilgreen, top sand 3,633 feet, initial production 62 bbls. per hour through seven-eighths inch tubing choke, total depth 3,717 feet; No. 41 W. L. Price, top sand 3,702 feet, initial production 41 bbls. in 25 minutes through open tubing, total depth 3,764 feet; No. 39-A R. E. L. Silvey, top sand 3,675 feet, initial production 98 bbls. per hour through seven-eighths inch tubing choke, total depth 3,736 feet; No. 10-B White, top sand 3,684 feet, initial production 27 bbls. in one-half hour through open tubing, total depth 3,769 feet.

Hunt Production Co.'s No. 15-A H. C. Maxwell, top sand 3,753 feet, initial production 43 bbls. in 21 minutes through open tubing, total depth 3,768 feet; No. 7 Vinson, top sand 3,643 feet, initial production 20 bbls. in 1 hour and 15 minutes pumping, total depth 3,737 feet. Sol Kimbrell's No. 1 W. A. Stroud, top sand 3,555 feet, initial production 15 bbls. in one-half hour swabbing, total depth 3,640 feet. Louisiana Oil & Refining Co.'s No. 5 Kirsch, top sand 3,601 feet, initial production 20 bbls. per hour through open tubing, total depth 3,605 feet. Marco Oil Co.'s No. 3 Alford, top sand 3,607 feet, initial production 50 bbls. per hour through open tubing, total depth 3,672 feet. Ortiz Oil Co.'s No. 6 A. Thrash, top sand 3,678 feet, initial production 20 bbls. per hour through open tubing, total depth 3,719 feet. Reed and others' No. 1 S. Lacey, dry and abandoned, total depth 3,700 feet. Spansco Oil Co.'s No. 8 Brett, top sand 3,674 feet, initial production 20 bbls. in one-quarter hour through open tubing, total depth 3,714 feet.

John Turnham, drilling contractor of Freer, Texas, with his son. Mr. Turnham recently finished a well in Duval County, Texas, for the Highland Oil Co.

Dearing & Son's No. 3 McDavid, top sand 3,686 feet, initial production 26 bbls. in 1 hour and 15 minutes through open tubing, total depth 3,745 feet. Tide Water Oil Co.'s No. 7 Flanigan, top sand 3,677 feet, initial production 84 bbls. per hour through 1-inch tubing choke, total depth 3,686 feet. Ward Oil Co.'s No. 10 J. Finney, top sand 3,647 feet, initial production 40 bbls. per hour through 2-inch tubing, total depth 3,706 feet.

Smith County

B. G. Byers' No. 1 J. R. Irion, top sand 3,765 feet, initial production 50 bbls. per hour through open tubing, total depth 3,766 feet. K. O. T. Oil Co.'s No. 5-A S. S. Cook, top sand 3,773 feet, initial production 30 bbls. in one-half hour through open tubing, total depth 3,777 feet. Lyons and Neely's No. 1 S. S. Cook, top sand 3,751 feet, initial production 30 bbls. in one-quarter hour through one-half inch tubing choke, total depth 3,754 feet. McCullough's No. 4 Church, top sand 3,773 feet, initial production 100 bbls. per hour through open tubing, total depth 3,785 feet. H. H. McMurray's No. 6 G. A. Turner, top sand 3,595 feet, initial production 125 bbls. per hour through open tubing, total depth 3,796 feet. Magnolia Petroleum Co.'s No. 10 R. Loosier, top sand 3,667 feet, initial production 22 bbls. in one-quarter hour through open tubing, total depth 3,672 feet; No. 11 R. Loosier, top sand 3,668 feet, initial production 20 bbls. in 10 minutes through open tubing, total depth 3,670 feet.

Upshur County

Magnolia Petroleum Co.'s No. 15 Hampton, top sand 3,632 feet, initial production 80 bbls. per hour through open tubing, total depth 3,680 feet. B. F. Phillips' No. 2 fee, top sand 3,681 feet, initial production 30 bbls. per hour through open tubing, total depth 3,683 feet. Rancho Oil Co.'s No. 10 J. K. Edwards, top sand 3,659 feet, initial production 25 bbls. in one-half hour through open tubing, total depth 3,680 feet. E. L. Smith Oil Co.'s No. 2 E. A. Watts, top sand 3,656 feet, initial production 20 bbls. in 20 minutes through open tubing, total depth 3,660 feet.

CAYUGA POOL

Anderson County

Tide Water Oil Co. and Texas Seaboard Oil Co.'s No. 1 L. A. Rampy, top Austin chalk 3,151 feet, base 3,492 feet, top Woodbine 3,770 feet, top Red Beds 3,840-46 feet, top gas sand 3,950 feet, top oil sand 4,054 feet, total depth 4,112 feet, plugged back to 4,068 feet, initial production 12 bbls. per hour through one-quarter inch tubing choke (James Wilson Survey); No. 3 Wills, top Pecan Gap 2,160 feet, base 2,373 feet, top Austin chalk 3,140 feet, base 3,530 feet, top Woodbine 3,878 feet, top Woodbine sand 3,910 feet, second sand 3,994 feet, top oil sand 4,048 feet, initial production 8 bbls. per hour through one-quarter inch tubing choke, total depth 4,067 feet.

WILDCAT COMPLETIONS

Nacogdoches County

Dick Schwab and others' No. 1 Z. Rambin, top Pecan Gap 3,045 feet, base 3,645 feet, top Austin chalk 4,007 feet, base 4,165 feet, top Georgetown lime 4,420 feet, dry and abandoned, total depth 4,921 feet (J. Simpson Survey).

Upshur County

B. F. Traywick and others' No. 1 M. Vaughan, junked and abandoned, total depth 1,026 feet (P. B. Standifer Survey).

West Texas Fields

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lime 1,154-70 feet, initial production 40 bbls., total depth 1,170 feet, treated with acid; No. 18 Coffield, lime 1,172-88 feet, initial production 110 bbls. per hour, total depth 1,188 feet, treated with acid. L. F. Hooker and others' No. 2 Justice, lime 1,085-99 feet, initial production 40 bbls., total depth 1,099 feet. Higgins Oil Co.'s No. 1-C Parkey, dry and abandoned, total depth 2,550 feet. C. B. Long's No. 12 Logan, lime 1,155-63 feet, initial production 120 bbls., total depth 1,163 feet, treated with acid. Massingill and others' No. 1 Anderson, abandoned location. George L. Pace's No. 6 Abercrombie, lime 1,135-47 feet, initial production 25 bbls., total depth 1,147 feet, treated with acid. Perkins and Cullum's No. 8-A Falls County School Land, lime 1,073-82 feet, initial production 1,000 bbls., total depth 1,082 feet, treated with acid; No. 7-C Falls County School Land, lime 1,157-74 feet, initial production 125 bbls., total depth 1,174 feet, treated with acid; No. 16 Falls-Titken, lime 1,101-20 feet, initial production 75 bbls., total depth 1,120 feet.

Perot Oil Corp.'s No. 1 Justice, lime 1,089-1,102 feet, initial production 375 bbls., total depth 1,102 feet, treated with acid. Petroleum Producers Co.'s No. 2-D Richardson, dry and abandoned, total depth 1,276 feet. Pois and Shultz' No. 22 Green, lime 1,145-67 feet, initial production 150 bbls., total depth 1,163 feet, treated with acid. Rathke Oil Co.'s No. 4-B Benson, oil sand 738-41 feet, initial production 50 bbls., total depth 741 feet. Standiforth and Ray's No. 6 Wilson, oil sand 1,593-1,600 feet, initial production 25 bbls., total depth 1,600 feet. Steele Drilling Co.'s No. 1 Archer County, dry and abandoned, total depth 900 feet. Tex-Ho Oil Co.'s No. 2 Anderson, lime 1,415-29 feet, initial production 500 bbls., total depth 1,429 feet, treated with acid. Texas Co.'s No. 1 Pace, dry and abandoned, total depth 1,553 feet.

Clay County

Bridwell Oil Co.'s No. 2 Stephenson, dry and abandoned, total depth 254 feet. E. J. Rewaldt's No. 1 Anderson, oil sand 1,350-80 feet, initial production 85 bbls., total depth 1,389 feet.

Jack County

Texas Co.'s No. 1 L. S. Wright, dry and abandoned, total depth 855 feet.

Montague County

O. V. Beck's No. 2 Davenport, oil sand 1,669-71 feet, and 1,682-1,704 feet, initial production 50 bbls. per hour through open tubing, total depth 1,704 feet. Bridwell Oil Co.'s No. 3-B Begley, lime 1,774-82 feet, initial production 15 bbls., total depth 1,782 feet, treated with acid.

Wichita County

C. R. Conyers and others' No. 1, oil sand 811-18 feet, initial production 5 bbls., total depth 818 feet.

Golding and Cochran's No. 1-C J. and P. Waggoner, oil sand 1,372-90 feet, initial production 62 bbls., total depth 1,390 feet. Peckham and Medders' No. 1-C W. T. Waggoner, dry and abandoned, total depth 1,931 feet. Petroleum Production Co.'s No. 34 Allen and King, dry and abandoned, total depth 1,501 feet. George Proctor's No. 1 Honaker, oil sand 1,358-04 feet, initial production 60 bbls., total depth 1,364 feet. United Producers Co.'s No. 1 Allen and Kemp, oil sand 1,758-62 feet, initial production 130 bbls., total depth 1,767 feet.

Wilbarger County

Phillips Petroleum Co.'s No. 5-S Waggoner, lime 2,569-80 feet, initial production 22 bbls., total depth 2,580 feet, treated with acid.

Young County

Beavers and White and others' No. 4 Remington and Belknap Oil Co., oil sand 572-84 feet, initial production 20 bbls., total depth 584 feet. Nash and Windfohr's No. 1 Graham-Vick, sand 2,666-85 feet, initial production 150 bbls., total depth 2,685 feet. Texas Co.'s No. 1 Kindley, dry and abandoned, total depth 4,190 feet. Wheeler and Brashear's No. 1 Coleman, dry and abandoned, total depth 1,103 feet.

RANGER AND WICHITA FALLS

Locations in the Wichita Falls district fell to 62 this week, and completions to 42, while locations in the Ranger district totaled 14. The decline in first reports and completions is no doubt due to the new orders prorating the North Central or Wichita Falls district to a smaller per well figure to hold the district to its daily allowable of 56,500 bbls. Since acid treating of lime wells has become so general, bringing in more operators and causing activities to gain almost every week, something had to be done to hold production within state and Federal allocations. The majority of wells in the district are stripper or marginal wells, but many have been completed recently flowing better than 1,000 bbls. Wells completed in the lime producing areas of Archer and rated good for 300 bbls. per day or more, have been allowed to produce 68 bbls. daily; they are now cut to a daily allowable of 39 bbls., the new ruling curtailing the wells to 10 per cent for marginal allowance and 10 per cent for the remaining proratable production. These wells have heretofore been prorated on a 20 per cent potential basis after deducting marginal allowance. The new orders went into effect May 15. However, with many large wells being completed in the lime areas each week, production in the district has been held to around the daily allowable. This week the daily average was up to 60,810 bbls., or 4,310 bbls. per day over the allowable.

Pipe line companies are connecting to all newly completed wells and seem willing to take the oil regardless of the daily allowable creeping upward as more flush producing wells are completed each week. Generally all newly discovered areas receive a pipe line connection soon after being brought in. However, these new areas are usually near other producing areas.

Humble Oil & Refining Co. has leased 10,000 acres in a block centering in Section 46, H.&T.C. Survey, Fisher County, and will put down a test in the near future.

Lone Star Gas Co. has acquired title to six gas wells in Palo Pinto County and two gas wells, including 260 acres in Stephens County. The former, in the Strawn townsite, are producing from the 3,000-foot pay and have an average rock pressure of 1,350 pounds. Hoffman and Page sold the properties.

E. N. Shaffner of Brownwood has brought in a well 2 miles northeast of Byrd's Store Pool which was discovered in 1918-1920, opening another producing area in Brown County. The well is on the Mary Bowden farm in the northeast corner of the W. E. Gilliland Survey No. 138. It logged saturated lime from 2,428-53 feet and was estimated good for 25 bbls. natural. It was treated with 1,000 gallons of acid, with 75 bbls. oil load with no pressure. It flowed 90 bbls. in 12 hours and is estimated good for 100 bbls. per day.

PANHANDLE DISTRICT

The Texas Pipe Line Co. has completed its 12 miles of 6-inch line from its Lefors station in Gray County, to its Carwile lease in Section 51, Block 24, H.&G.N. Survey, Wheeler County, a greatly needed outlet where several good wells have recently been completed, and where developments are rapidly going ahead. This is the first line of any importance to be laid in the district for a long time, although another line is expected to be laid into the eastern part of Wheeler County in the near future, to an area in which there are four producers and considerable drilling activity.

Last week the district was granted a 4,000-bbl. daily increase in production, raising the allowable to 56,800 bbls. per day. Operators and companies took advantage of this needed increase by increasing their daily runs by over 3,000 bbls., or jumping production to 59,010 bbls. per day. The new schedule shows the potential of the field as 188,643 bbls. in comparison to the former potential of 180,794 bbls. This increase in potentials is due to the recent completion of a number of flush producers.

Gasolines and Fuels Advance in the East

(Continued from Page 23)

individual refiners will not be able to produce more than their allowables. Those who believe that the new plan of controlling gasoline production will be generally supported and enforced also point out that the Government has the machinery to remove excess material from the market through interrefinery purchase plans. They are confident that the worst is over for the year so far as the gasoline market is concerned.

Prices

As previously indicated the open market tank car price situation in gasolines is somewhat muddled due to the fact that all sellers have not met the advances announced by most of the larger companies. The low on U. S. Motor gasoline under 60 octane is 6 cents. Relatively little of this product is sold on this market and the price to a large extent is determined by irregular shipments from the Gulf Coast. In the middle octane material, prices range from 6¼ to 6¾ cents and the price range on the 65 octane material is still wider starting at 6½ cents and extending to 7¼ cents. The Standard of New York established a tank car price of 7¼ cents in New York for its regular branded motor grade and one-half cent less for its middle octane material. Several of the major refiners in this territory have similar prices for the New York area with a 7-cent price for an unbranded product having a minimum octane rating of 65. At normal points the companies made the same advances that they did in the New York harbor.

At Boston and a few less important points the market is unsettled and full advances in tank car prices are being delayed. Special efforts are being made to correct conditions at subnormal points applying to tank wagon and service schedules as well as tank car prices.

The kerosene market in this territory appears to be headed for a 6-cent low although the market at the close of the week still showed a low of 5½ cents. The advances in the furnace oil market are the basis for the 6-cent prediction. The kerosene market at this time is dull due in part to the lack of activity in export sales. Some are afraid that it will be difficult to maintain higher prices until next fall when consumption increases.

The demand for lubricating oils centering in the bright stocks and paraffin base neutrals continues heavy and sellers are having no difficulty in maintaining the price advances made effective the latter part of April. Prices on low cold test Pennsylvania bright stocks range from 30 to 32 cents per gallon in bulk with the same price range covering the market for low cold test, 200-3 color neutral oils made from Pennsylvania Grade oils. The western grade bright stocks are quoted from 4 to 6 cents under the Pennsylvania stocks in this market. Several refiners and compounders have recently advanced their prices on all grades of motor oils made from paraffin base stocks. The asphaltic base oils from the Gulf Coast also are slightly stronger.

There has been no sustained increase in the demand for refined and crude scale wax. The latter is available at a low of 3½ cents per pound.

Oil Industry Increasing Use of Chemical Products

(Continued from Page 6)

the Union Oil Co. was on the "Application of Theoretical Method of Calculation to Commercial Gasoline Stabilizer Test Data."

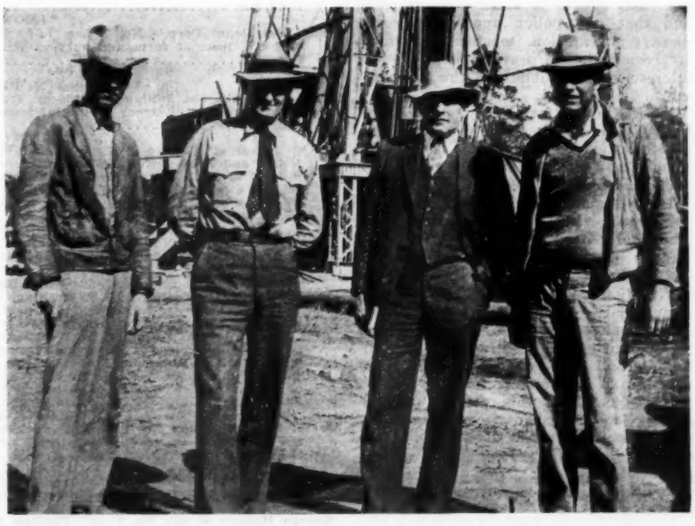
Entrainment in Column

George E. Holbrook, research chemist of E. I. du Pont de Nemours & Co., and Edwin M. Baker of the University of Michigan presented an interesting study of entrainment in a bubble cap distillation column especially designed for that purpose. Some of the authors' findings follow:

"In general, doubling the column vapor velocity results in approximately a tenfold increase in entrainment. Furthermore, the closer the plates are, the greater is the effect of the column vapor velocity.

"Plate spacing and column vapor velocity are about equally important in determining the amount of entrainment under any given conditions. A plot of the log of entrainment versus the reciprocal of the plate spacing for various vapor velocities has been presented. The curves on this figure are nearly straight lines over the range covered and this permits fairly accurate interpolation or extrapolation of the recorded data. As an approximate generalization it can be said that cutting the plate spacing in half will result in about a tenfold increase in entrainment.

"The amount of reflux has only a moderate effect on entrainment as compared to plate spacing and column vapor velocity. In this connection it has been



Snapped in the Conroe, Texas, field. Left to right: Dick Tibbs, field representative of Oil Center Tool Co.; C. C. Farris, superintendent of T. B. Cochran Drilling Co.; T. W. Eagleston, president Eagle Mud Co., and O. F. Barton, superintendent, American Liberty Oil Co., at Conroe

pointed out that increasing the reflux from 100 to 300 pounds per hour results in approximately a twofold increase in entrainment.

"Entrainment is not very sensitive to changes in the slot vapor velocity, other things being equal. The effect of slot vapor velocity is about the same order of magnitude as that of the amount of reflux. Because of the complexity of the physical phenomenon it is not felt safe to attempt a generalization with regard to this variable. It has been pointed out that, under certain conditions, increasing the slot velocity 2.41 times only doubled the entrainment, whereas under other conditions this same increase in velocity actually decreased the amount of entrainment.

"Data have been presented which indicate that the surface tension of the liquid does affect the amount of entrainment as would be expected from theoretical considerations. Compared to the other variables which affect entrainment it does not appear as important. It has been pointed out that surface tension affects foaming power and that these two properties to date have not been satisfactorily correlated. It is therefore believed that a generalized correlation between surface tension and entrainment is as yet impractical."

ROCKY MOUNTAIN RUNS

Estimated daily average production for the week ending May 19 follows:

	Bbls.
WYOMING	
Salt Creek	18,310
Big Muddy	1,880
Badger Basin	40
Garland	50
Byron	20
Dallas Derby	600
Dutton Creek	90
Elk Basin	620
Ferris	20
Frannie	1,440
Grass Creek	1,320
Greybull	10
Hamilton Dome	620
Hudson	310
LaBarge	920
Lance Creek	300
Lost Soldier	1,610
Mule Creek	shut in
Midway	150
Notches	shut in
Oregon Basin	440
Osage	860
Pilot Butte	10
Rex Lake	shut in
Rock River	1,540
South Casper	shut in
Poison Spider	170
Teapot	20
Total Wyoming	31,350
MONTANA	
Buckley-Border	390
Cat Creek	650
Cut Bank	1,820
Dry Creek	shut in
Kevin-Sunburst	3,440
Lake Basin	40
Pondera	880
Total Montana	7,120
COLORADO	
Florence	540
Fort Collins and Wellington	170
Ilex Dome	1,360
Moffat	480
Orchard	110
Rangely	90
Tow Creek	240
Total Colorado	2,990
NEW MEXICO	
Artesia	640
Cooper area	80
Empire area	0
Eunice area	1,940
Getty Pool	0
Hobbs	35,540
Hogback	160
Hospah	shut in
Jal	2,620
Lea area	1,700
Jackson	1,460
Maljamar	350
Rattlesnake	750
Table Mesa	80
Total New Mexico	45,210
Total Rocky Mountain region	86,670

DISQUALIFIES IN GAS CASE

AMARILLO, Tex., May. 18.—Federal Judge James C. Wilson today disqualified himself in the trial of six suits dealing with alleged wastage of natural gas in the Panhandle Field.

He told attorneys he would ask United States Circuit Judge J. C. Hutcheson of New Orleans to hear arguments on points of law involved, probably at Houston early next week. Judge Wilson disqualified himself because he owns land in the gas area involved.

Jersey Annual Report Shows Profit Past Year

Reporting net profit for 1933 the best since 1930 and equivalent to 97 cents a share, the Standard Oil Co. (New Jersey) in addition shows a book profit on foreign exchange operations of $24,972,491, equal to about 97 cents a share. This latter amount, in "Reserve for Foreign Exchange Fluctuations" in the balance sheet, represents the net increase during the year in dollar value of working capital employed abroad, resulting from the decrease in value of the dollar. Because of the currency uncertainties and the fact that such profit is subject to future fluctuations in exchange and may never be realized, directors felt that this amount should be set aside in a reserve rather than credited to income, the company states.

Despite the fact that funded and long-term indebtedness was reduced by $27,846,765 during 1933, the company at the close of last year had cash and marketable securities of $188,783,656, or more than $10,000,000 in excess of the year previous. The big reduction in long-term obligations occurred in purchase obligations and represented the annual instalment on the purchase price of $47,910,107 cash and 1,778,973 shares of Jersey stock for the foreign properties of Pan American Petroleum & Transport Co., acquired from Standard Oil of Indiana in May, 1932.

Total current assets and permanent investments at the year-end were $818,839,758, an increase of $106,975,852. This is explained in part by that portion of earnings before reserves which may be included in these assets and in part by the effect on dollar equivalents of the foreign currency assets resulting from devaluation of the dollar and the inclusion under "Stocks and Other Securities of Corporations Not Consolidated" of the assets of the two subsidiaries merged into Standard-Vacuum Oil Co., which in previous reports were spread through several items on the balance sheet. The Standard-Vacuum Oil Co. was the new company into which Far East properties of the Jersey company and Socony-Vacuum were merged.

In the report, W. S. Farish, chairman, and W. C. Teagle, president, state that the company adheres to its long-time conviction that the solution of the industry's troubles lies in a rigid control of the crude oil supply and welcomes co-operation of the government in that field.

"It has supported and will continue to support," they state, "all sound measures adapted to that end, with reasonable provisions for inquiry and enforcement. It is believed, however, that the continuance of the industry on a self-governing basis should be assured at all cost, and that any policy approaching complete regimentation, whether temporary or permanent, will prove fatal to the best interests of the public and the oil industry alike."

In its initial form, they say, the oil control bill introduced in Congress proposed "to extend government control far beyond the regulation of crude production which the industry has favored."

In the marketing division, the company states, less than a fourth of gasoline sales by subsidiaries are made through company-operated stations. The larger part of the business depends on distribution through dealers and to large commercial consumers. In the refining department, a study of lubricating oil manufacturing led to a decision to consolidate all Essolube production, and program to this end is under way and will be completed this year. Pipe line earnings in 1933 showed considerable decline compared with 1932, due to decreases in tariff rates. Natural gas earnings were low, due to depression prices, although an improvement for 1934 is noticeable.

Foreign Holdings Discussed

"By license under the company's patents," the report states, "Imperial Chemical Industries, Ltd., of England has under construction a hydrogenation plant to produce gasoline from coal, to be in operation by the latter part of 1935. Recent technical progress, together with a reasonable increase in the price of petroleum products to bring them into line with their commercial worth, will in all probability bring the hydrogenation process into use for the production of gasoline from refractory low gravity gas oils."

L. V. Stanford Placed on Board of Consolidated

NEW YORK, May 21.—L. V. Stanford, vice president of the Sinclair Refining Co. and for several years in charge of foreign oil sales for the Sinclair company, today was elected a member of the board of the Consolidated Oil Corp., the parent company of the Sinclair interests. With the election of Mr. Stanford, the Consolidated board now consists of 29 directors.

At the annual meeting today Harry Sinclair, chairman of the board, said that the net results for the first quarter of 1934 were $5,500,000 better than the same period of 1933. He said that prices in the industry were not high enough to permit an adequate return on the amount of business done by the company. Herbert R. Gallagher, president of the corporation, in reply to an inquiry said that the oil business had shown substantial improvement under the code.

In addition to Mr. Stanford the following are directors of the Consolidated corporation: F. H. Bartlett, J. W. Carnes, Sheldon Clark, R. L. Clarkson, C. E. Crawley, R. E. Cutten, J. Fletcher Farrel, W. S. Fitzpatrick, Halstead G. Freeman, Samuel L. Fuller, Herbert R. Gallagher, E. W. Isom, Dana H. Kelsey, Clark H. Kountz, George MacDonald, Hunter S. Marston, Nelson K. Moody, William P. Phillips, Daniel T. Pierce, H. H. Rogers, H. F. Sinclair, E. W. Sinclair, G. T. Stanford, George H. Taber, Jr., P. W. Thirtle, E. R. Tinker, Alvin Untermyer and A. E. Watts.

SPECIFICATIONS FOR KEROSENE

The Federal Specifications Board has issued a specification on kerosene listed as Federal Specification VV-K-211. Copies of this specification may be obtained from this office or the Government Printing Office for 5 cents each.

East Central Texas Wildcats

(Continued from Page 49)

T. J. Wood et al's No. 1 New Birmingham, 660 ft. from S and E lines of 1,128-ac. tract, 7 miles SW of Rusk, Levi Jordan Sur. ..... Coring 5,015 ft.

FANNIN COUNTY

L. Kean et al's No. 1 L. M. Boyd, 900 ft. from E line and 200 ft. from N line of survey, W. Hunt Sur. .... Drlg. 2,190 ft.

FREESTONE COUNTY

Clyde Creighton's No. 1 Holly Bros., 854 ft. from W and center N and S lines of lease, A.B.&M. Sur. ..... Junked; T.D. 5,180 ft.

Daniels Oil & Royalty Co.'s No. 1 P. D. C. Ball, 10,380 ft. from S line and 1,980 ft. from W line of survey, Jose Ignacio Auguilera Sur. ..... T.D. 5,003 ft.; plugged back to 4,865 ft.

Trinity Farm Co.'s No. 1 N. R. Stewart, 1,866 ft. SW from NE line and 933 ft. SE from NW line of 1,920-ac. tract, R. M. Williamson Sur. ..... Location.

GREGG COUNTY

E. A. Lamb's No. 1 Clements, 500 ft. from W line and 1,880 ft. from N line of survey, G. A. Thomason Sur. ..... Derrick.

Sparkman and Reusch's No. 1 E. E. Stone, 1,000 ft. from E line and 330 ft. from N line of survey, M. Alexander Sur. ..... Derrick.

HENDERSON COUNTY

Big Bad Wolf Oil Co.'s No. 1 McCreary, 1,800 ft. from W line and 330 ft. from S line of survey, 6 miles S of Malakoff, W. H. Irvin Sur. ..... Derrick.

Roy Black et al's No. 1 C. B. Meredith, 360 ft. from N and W lines of 64.5 ac. tract, 4 miles SE of Malakoff, Wiley Kay Sur. ..... Drlg. 3,470 ft.

Campbell and Champlin's No. 1 R. S. Ansley, 108 varas S. 623 varas W of NE cor. of lease, 6 miles SE of Buffalo, N. H. Thompson Sur. ..... Derrick.

Gulf Production Co.'s No. 1 H. T. Gilliam (George Collins), 660 ft. from S and W lines of 100-ac. tract, J. L. Scott Sur. ..... Bldg. derrick.

HUNT COUNTY

H. C. Waggoner et al's No. 1 Love, 300 ft. from N line, 6,300 ft. from W line of 95-ac. tract, John Gilisky Sur. ..... Drlg. 3,335 ft.

KAUFMAN COUNTY

W. J. Lewis et al's No. 1 D. Clark, 430 ft. from S line and 600 ft. from E line of survey, 6½ miles NW of Elmo ..... S.D. 400 ft.

LAMAR COUNTY

Cole et al's (formerly Optometrist Oil Club) No. 1 J. M. McFaddin, 450 ft. from S and W lines of E 35-ac. tract, 10 miles NW of Paris, Joseph Dick Sur. ..... S.D. 2,506 ft.

LEON COUNTY

Shell Petroleum Corp.'s No. 1 Lee, 1,500 ft. from NW and SW lines of farm and survey, William Cooper Sur. ..... T.D. 6,040 ft.; plugged back to 5,660 ft.

MORRIS COUNTY

Simpson et al's No. 1 Staggers, 800 ft. from S line of survey and 150 ft. from W line of lease, J. B. Nelson Survey ..... Drlg. 2,530 ft.

LIMESTONE COUNTY

C. M. Joiner et al's No. 1 S. A. Knobb, 900 ft. from N line and 1,000 ft. from W line of survey, one-half mile N of Falls County line, Luke Moore Sur. ..... S.D. 1,700 ft.

J. Rodgers et al's No. 1 Vol DeLone, 1,516 ft. from W line and 600 ft. from N line of W 100-ac. tract, Pedro Varela Sur. ..... Shut down.

NACOGDOCHES COUNTY

Livingston Oil Co.'s No. 1 C. B. Watkins, 150 ft. from N line and 330 ft. from NW lines of 160-ac. tract, 3 miles S of Caro, H. Y. Bailey Sur. ..... Derrick.

NAVARRO COUNTY

W. J. Keeling et al's No. 1 J. F. Rushing, 484 ft. from N line and 150 ft. from W line of 184-ac. tract, 6 miles SW of Richardson, Henry Ford Sur. ..... Derrick.

J. B. Stoddard et al's No. 1 C. S. West estate, 1,000 ft. from W line and 650 ft. from N line of 682-ac. tract, Mathew Boren Sur., Abstract No. A-56 ..... Rigging up.

McCullough et al's No. 1 C. Berry, 330 ft. from SE cor. of 35-ac. tract, 1 mile W of Dawson, William Moss Sur. ..... Location.

RAINES COUNTY

J. W. Halsell et al's No. 1 P. F. Jones, 400 ft. out of SW cor. of 22-ac. tract, 2½ miles S of Alba, B.B. B.&C. Sur. ..... Cleaning out 1,634 ft.

RUSK COUNTY

Arnold and Shaw's No. 1 J. E. Arnold, 1,530 ft. from S line and 300 ft. from most southerly E line of survey, J. Crawford Sur. ..... Derrick.

George Hudson et al's No. 3 Jeff Phillips, 150 ft. from N line of survey and 700 ft. from W line of 100-ac. tract, 4 miles SE of Minden, N. Villaria Sur. .... Drlg. 3,150 ft.

A. A. Oil Co.'s No. 1 Geo. Curbo, 1,900 ft. from S line, 330 ft. from E line of Wm. Christian Sur. ..... T.D. 3,691 ft.

Octo Oil Co.'s No. 1 E. Tipps, 2,750 ft. from S line and 7,400 ft. from W line of Juan Ximines Sur. ..... Swabbing; T.D. 3,640 ft.

Reed et al's No. 1 S. Lacy, 1,610 ft. from S line and 1,000 ft. from E line of survey, R. B. Tutt Sur. ....Coring; T.D. 3,617 ft.
Sinclair Prairie Oil Co.'s No. 1 Kangerga Bros., 330 ft. from W and 300 ft. N of NW cor. of E. S. Van Sickel Sur. ....Waiting on cmt. to set 3,621 ft.

SMITH COUNTY

Preston Rose et al's No. 1 Elisha Wiggins, 2,300 ft. from W line and 330 ft. from S line of 640-ac. tract, 2 miles SW of Winona, F. H. K. Day Sur., Abstract No. 285 ....Rig up.
Texas Trading Co.'s No. 1 O. T. Ray, 330 ft. from S and W lines of E half of O. T. Ray 100-ac. tract, 10 miles SW of Tyler, M. T. Duncan Sur. ....Drlg. 3,630 ft.

UPSHUR COUNTY

F. A. Fuller et al's No. 1 Penn, 330 ft. from N and E lines of Shell's 80-ac. Penn lease, James Scott Sur. ....Tested salt water on drill stem test; S.D.
Virgil Hodges et al's No. 1 J. M. Floyd, 330 ft. from NE cor. of 126-ac. tract, 4 miles N of Gladewater, Railroad Sur. ....S.D. 1,050 ft.
Lanier and Moore's No. 1 Vaughan, 230 ft. from S line and 330 ft. from W line of 100-ac. tract, 2 miles NW of Big Sandy, P. W. Standifer Sur. ....Drlg. 80 ft.
Papadake et al's No. 1 L. L. Towery, 1,800 ft. N and 330 ft. E of SW cor. of survey, 5 miles N of Gladewater, W. L. Palmer Sur. ....Rig up.
Randerson et al's No. 1 Nid Minor, 600 ft. from NW line and 1,800 ft. from NE line of tract, D. R. Cannon Sur. ....Coring 3,563 ft.

VAN ZANDT COUNTY

Germany et al's No. 1 C. S. Coker, 150 ft. out of SW cor. of 55-ac. tract, William Daniel Sur. ....Set csg.; T.D. 1,208 ft.
Gilium and Allen et al's No. 1 A. T. Bass, 150 ft. from W. line and 150 ft. from N line of 10-ac. tract, William Hart Sur. ....S.D. 4,218 ft.
Griffith Bros.' No. 1 Bruce, 1,000 ft. from S line and 330 ft. from E line of 124-ac. tract, G. Martinez Sur. ....S.D. 1,562 ft.
Humble Oil & Refining Co.'s No. 3 S. R. Ray, 200 ft. N and 160 ft. W of SW cor. of Listenbee 30-ac. tract and on Ray 111.6-ac. tract, Nacogdoches County School Land Sur. ....T.D. 1,257 ft.; showing oil.
Isaac et al's No. 1 C. F. Darrell, 330 ft. from S and W lines of 53-ac. tract, C. B. River Sur. ....Spudding.
W. E. McKinney et al's No. 2 B. T. Davis, 285 ft. from N line and 235 ft. from W line of 13-ac. tract, J. Goodman Sur. ....S.D. 1,166 ft.
Miller et al's No. 1 J. M. Palmer, 150 ft. from S and E lines of 69-ac. tract, Nacogdoches County School Land Sur. ....S.D. 94 ft.
Peden and Olson's No. 3 W. Banson, 600 ft. S of No. 2 and 140 ft. from W line of tract, J. Goodman Sur. ....Location.
Pure Oil Co.'s No. 2 Ray, 250 ft. N of S line and 183 ft. W of E line of tract, Nacogdoches County School Land Sur, elev. 449.7 ft. ....S.D. 1,215 ft.
Pure Oil Co.'s No. 4 W. F. Swain, 660 ft. E of W line and 200 ft. N of S lines of 33.06-ac. tract, John Walling Sur. ....Derrick.
Pure Oil Co.'s No. 5 O. L. and L. L. Swain, 208 ft. W of E line and 105 ft. N of S line of O. L. and L. L. Swain 48.2-ac. tract, John Walling Sur. ....Set csg.
Pure Oil Co.'s No. 9 W. T. Jarman, 1,676 feet N of S line and 250 ft. E of W line of W. T. Jarman 132.8-ac. tract, Nacogdoches School Land Sur. ....Rig up.
Shell Petroleum Corp.'s No. 12 E. L. Fowler, 224 ft. N of S line and 179 ft. W of E line of 35.35-ac. tract, John Walling Sur. ....Drlg. 2,300 ft.
Wheeler et al's No. 1 Cade, 180 ft. from S line and 150 ft. from E line of 20-ac. tract, Nacogdoches County School Land Sur. ....Drlg. 240 ft.
J. D. Wrather et al's No. 1-A G. W. Carter, 1,000 ft. from S line and 250 ft. from W line of G. W. Carter 171-ac. tract, William Daniel Sur., 4 miles NE of Van ....Coring 2,931 ft.
Peden and Olsen's No. 1 J. M. Palmer, 200 ft. from E and N lines of south 2 acres of 94-ac. tract, Nacogdoches County School Land Sur. ....Location.

WOOD COUNTY

Cauble and Thompson's No. 1-A N. G. Bobbett, 900 ft. from S line and 330 ft. from W line of tract, 2½ miles NW of Mineola, Daniel Fuller Sur. ....Coring 5,234 ft.
McElreath and Suggett's No. 1 B. D. Holley, 466 ft. from S and W lines of Holly tract, 8 miles SW of Winnsboro, James M. Moore Sur. ....S.D. 1,662 ft.

Wildcat Operations in West Texas

(Continued from Page 48)

Humble Oil & Ref. Co.'s No. 2 E. J. Jones, 660 ft. from S line and 1,988 ft. from the W line of Sec. 6, Blk. 44, Twp. 3s, T.&P. Sur. ....Treated with acid.
Landreth Prod. Co.'s No. 1-B T. P. Land Trust, 2,200 ft from the S line and 440 ft. from the W line of Sec. 3, Blk. 43, Twp. 1s, T.&P. Sur. ....Location.
Landreth Prod. Co.'s No. 2 O. B. Holt, 660 ft. from S and E lines of Sec. 15, Blk. 43, Twp. 1n, T.&P. Sur. ....Moving in material.
Landreth-Liano Oil Co.'s No. 3 Holt, 660 ft. from N line and 660 ft. from W line of Sec. 30, Blk. A, P.S.L. Sur. ....Cleaning out after shot; T.D. 4,339 ft.
Landreth Prod. Co.'s No. 1 Clarence Scharbauer, 660 ft. from S and E lines of Sec. 20, Blk. 44, Twp. 1n., T.&P. Sur. ....Drlg. water well.
Landreth Prod. Co.'s No. 1 O. B. Holt, 1,980 ft. from S line and 660 ft. from E line of Sec. 19, Blk. A, P.S.L. Sur. ....Set pipe 120 ft.
Landreth Prod. Co.'s No. 1 T. P. Land Trust Co., 440 ft. from N line and 2,200 ft. from W line of Sec. 3, Blk. 43, Twp. 1s, T.&P. Sur. ....Drlg. 4,002 ft.
McCurdy et al's No. 1 Foster, 330 ft. from S line and 440 ft. from W line of Sec. 36, Blk. 43, Twp. 2s, T.&P. Sur. ....Show of gas 3,789 and 3,840 ft. Drlg. 3,945 ft.
Moran Drlg. Co.'s No. 1 Smith, 330 ft. from N line, 330 ft. from W line of Sec. 12, Blk. 43, Twp. 1s, T.&P. Sur. ....S.D. 4,425 ft.
Stanolind Oil & Gas Co.'s No. 6 J. M. Cowden, 660 ft. from N and 660 ft. W of the SE cor. of Sec. 27, Blk. 43, Twp. 1n, T.&P. Sur. ....Drlg. 3,420 ft.
Shell Pet. Corp.'s No. 2 Jones, 660 ft. from S line and 1,980 ft. from E line, Sec. 6, Blk. 44, Twp. 3s, T.&P. Sur. ....Drlg. 3,195 ft.
Skelly Oil Co.'s No. 1 Connell, 1,650 ft. from N line and 440 ft. from E line of Sec. 11, Blk. 16, P.S.L. Sur. ....Drlg. 530 ft.
Stanolind O. & G. Co.'s No. 3 E. F. Cowden, 2,275½ ft. E and 330 ft. from S line, Sec. 36, Blk. 43, Twp. 2s, T.&P. Sur. ....Produced 319 bbls. after shot; T.D. 4,172 ft.
Stanolind Oil & Gas Co.'s No. 5 J. M. Cowden, 660 ft. from N and 1,980 ft. from E line of Sec. 34, Blk. 43, Twp. 1n, T.&P. Sur. ....T.D. 4,440 ft.; plugged back to 4,392 ft.; will treat with acid
Fred Turner's No. 2-A Addis, 2,310 ft. from N and 440 ft. from E of Sec. 35, Blk. 43, Twp. 2s, T.&P. Sur. ....Cellar.
York-Harper et al's No. 1 Bates, 660 ft. from N and 660 ft. from E, Sec. 38, Blk. 44, Twp. 2s, T.&P. Sur. ....Location.

FISHER COUNTY

E. T. Campbell et al's No. 1 W. R. Bishop, 670 ft. from S and 150 ft. from E of NW cor. of Sec. 18, Blk. 21, T.&P. Sur. ....Moving in.
Condor Pet. Co.'s No. 1 Herring, 450 ft. from S and 330 ft. from W line of Sec. 192, Blk. 1, B.B.B.&C. Sur. ....Drlg. 2,400 ft.
Condor Pet. Co.'s No. 2 Wilson, 640 ft. from N and 2,310 ft. from W line of Sec. 6, Blk. R, W. E. Richardson Sur. ....Bldg. rig.
Roeser & Pendleton's No. 2 Frank Steele, 1,470 ft. from S and 990 ft. from W line of Sec. 210, Blk. 1, B.B.B.&C. Sur. ....Swabbed 200 bbls. of oil and 200 bbls. of water; T.D. 3,196 ft.
Sinclair Prairie Oil Co.'s No. 2 Frank Steele, 990 ft. from N and 330 ft. from E line of Sec. 73, Blk. 1, H.&T.C. Sur. ....Drlg. 2,900 ft.
Southern's No. 1 King, 660 ft. from N and 330 ft. from W line of SW Sec. 193, B.B.B.&C. Sur. ....Drlg. 3,100 ft.
Stanolind Oil & Gas Co.'s No. 5 Steele, 1,170 ft. from S and 990 ft. from W line of Sec. 210, Blk. 1, B.B.B.&C. Sur. ....Drlg. 2,100 ft.
Texas Inland Oil & Gas Co.'s No. 1 First National Bank of Ramlin, 1,980 ft. from N and 990 ft. from W, Sec. 191, Blk. 1, B.B.B.&C. Sur. ....Pumping 12 bbls. of oil and 8 bbls. of S.W. per hour; T.D. 3,112 ft.
Texas Co.'s No. 4 T. A. Jean, 920 ft. from N and E lines of Sec. 201, Blk. 1, B.B.B.&C. Sur. ....T.D. 3,114 ft.; will treat with acid.
Texas Co.'s No. 2-B Teagarden, 990 ft. from S and 330 ft. E of NW cor. of S half of Sec. 9, Blk. 8, W. E. Richardson Sur. ....Rig up.
Texas Co.'s No. 1 First National Bank of Rotan, 330 ft. N and E of the NW cor. of Sec. 210, B.B.B.&C. Sur. ....Drlg. 415 ft.

GLASSCOCK COUNTY

Steve Currie et al's No. 1 Turner, 330 ft. from N line and 330 ft. from E line of Sec. 19, Blk. 33, Twp. 2s, T.&P. Sur. ....S.D. 1,120 ft.
Steve Currie et al's No. 1 Underwood, 660 ft. from N line and 660 ft. from E line of Sec. 24, Blk. 3, Twp. 4s, T.&P. Sur. ....Location.
Empire Gas & Fuel Co.'s No. 3 G. T. Hall, 330 ft. from the N line and 990 ft. from the W line of Sec. 21, Blk. 33, Twp. 2s, T.&P. Sur. ....Drlg. 520 ft.
John I. Moore et al's No. 1 J. S. McDowell, 1,980 ft. from N line and 660 ft. from E line of Sec. 22, Blk. 34, Twp. 2s, T.&P. Sur. ....Drlg. 2,250 ft.
Noble Drlg. Co.'s No. 1 Lee, 330 ft. from N line and 2,310 ft. from E line of Sec. 20, Blk. 33, Twp. 2s, T.&P. Sur. ....T.D. 2,132 ft.
Noble Drlg. Co.'s No. 2 W. P. Edwards, 330 ft. from the S line and 330 ft. from the W line of Sec. 17, Blk. 33, Twp. 2s, T.&P. Sur. ....Drlg. 1,550 ft.
Simms Oil Co.'s No. 2 W. P. Edwards, 330 ft. from S and 990 ft. from E of Sec. 18, Blk. 33, Twp. 2s, T.&P. Sur. ....Drlg. 1,550 ft.
Simms Oil Co.'s No. 1 W. P. Edwards, 330 ft. from S and E lines of Sec. 18, Blk. 33, Twp. 2s, T.&P. Sur. ....Drlg. 2,060 ft.
Tribal Oil Co.'s No. 5 M. M. Edwards, 330 ft. from S line and 990 ft. from the W line of Sec. 16, Blk. 33, Twp. 2s, T.&P. Sur. ....Drlg. 660 ft.

HOWARD COUNTY

Humble Oil & Ref. Co.'s No. 3 W. R. Settles, 1,650 ft. from W line and 330 ft. from the S line of Sec. 132, Blk. 29, W.&N.W. Sur. ....Fishing 2,301 ft.
Continental Oil Co.'s No. 2 Gilbreath, 330 ft. from N line and 660 ft. from E line of Sec. 24, Blk. 33, Twp. 2s, T.&P. Sur. ....Location.
L. C. Harrison et al's No. 2 Texas Land & Mortgage Co., 2,310 ft. from E line and 330 ft. from the S line of Sec. 4, Blk. 30, Twp. 1s, T.&P. Sur. ....Location.
Plymouth Oil Co.'s No. 11 Kloh, 1,320 ft. from S line and 660 ft. from W line of Sec. 5, Blk. 32, Twp. 2s, T.&P. Sur. ....Rig up.
Permian Pacific Pet. Co.'s No. 1 Capps, 330 ft. from SW cor. of Sec. 17, Blk. 29, Twp. 1s, T.&P. Sur. ....Location.
Plymouth Oil Co.'s No. 10 Kloh, 660 ft. from S line and 660 ft. from W line of Sec. 5, Blk. 32, Twp. 2s, T.&P. Sur. ....T.D. 1,625 ft.
Joe Rusk et al's No. 3 G. M. Dodge, 330 ft. from the N line, 330 ft. from the E line, Sec. 9, Blk. 30, Twp. 1s, T.&P. Sur. ....Rig up.
Sinclair Prairie Oil Co.'s No. 1 Perry Jones, 2,310 ft. from W and 330 ft. from N, Sec. 9, Blk. 30, Twp. 1s, T.&P. Sur. ....Fishing; T.D. 2,763 ft.
Sinclair Prairie Oil Co.'s No. 12 Dodge, 330 ft. from S line and 2,360 ft. from W line, Sec. 11, Blk. 30, Twp. 1s, T.&P. Sur. ....Rig up.
Sloan & Lewis' No. 1 Daniell, 2,475 ft. from E and 330 ft. from S of Sec. 16, Blk. 31, Twp. 1n, T.&P. Sur. ....Abnd.; sulphur water 3,340 ft.
Southern Oil Co.'s No. 1 Frazier, 660 ft. from S line and 660 ft. from W line of Sec. 4, Blk. 33, Twp. 10s, T.&P. Sur. ....Rig up.

IRION COUNTY

Melrose Oil Co.'s No. 1 J. D. Sugg, 1,700 ft. from the E line and 308 ft. from the S line of Sec. 25, Blk. 2, H.&T.C. Sur. ....Spudded and S.D.
Williams-Short's No. 1 Gentry, 1,200 ft. from N line and 2,080 ft. from W line of Sec. 1, Blk. 3, H.&T.C. Sur. ....S.D. 835 ft.

JONES COUNTY

C. P. Campbell's No. 3 Herndon, 1,450 ft. from S line and 800 ft. from W line, Sec. 6, M.E.P.&P. Sur. ....Swabbed 5 bbls. of fluid per hour; T.D. 2,497 ft.
Clifton & Brazelton et al's No. 1 Cassey, 700 ft. from N and W lines of SE cor. of Sec. 15, Blk. 15, T.&P. Sur. ....S.D. 450 ft.
Elmer Close et al's No. 1 A. B. Faulks, 330 ft. from N line and 330 ft. from W line of Subdiv. No. 27, Henry Milliard Sur. ....Drlg. 1,715 ft.
Condor Pet. Co.'s No. 2 Sayles, 650 ft. from N line and 960 ft. from W line of Sec. 3, Blk. 20, T.&P. Sur. ....Drlg. 1,500 ft.
Guthrie & Lancaster's No. 1-B Campbell, 330 ft. from N and 2,276 ft. from E line of Sec. 15, Blk. 19, T.&P. Sur. ....S.D. 680 ft.
Southern Oil Corp.'s No. 2 Williams, 330 ft. from S and W line of Sec. 17, Blk. 19, T.&P. Sur. ....Drlg. 200 ft.
Texas Inland Oil Co.'s No. 1 J. E. Sellers, 200 ft. from NE of NW cor. of W. Dick Sur. No. 241, Abst. No. 167 ....Underreaming; T.D. 1,752 ft.; filled up 1,000 ft. of oil in 5 hrs.

LOVING COUNTY

R. L. Allen's No. 2 fee, 4,290 ft. from NE line, 990 ft. from SE line, Sec. 32, Blk. 33, H.&T.C. Sur. ....Location.
R. L. Allen's No. 3 fee, 4,290 ft. from NE line, 990 ft. from NW line, Sec. 32, Blk. 33, H.&T.C. Sur. ....Location.
R. L. Allen's No. 4 fee, 4,290 ft. from NE line, 330 ft. from NW line, Sec. 32, Blk. 33, H.&T.C. Sur. ....Location.
The California Oil Co.'s No. 8 Reagan-McElvain, 330 ft. from NW and SW lines of Sec. 84, Blk. 1, W.&N.W. Sur. ....T.D. 1,785 ft.
Eppenauer Drlg. Co.'s No. 2 Hammill & Ellis, 410 ft. from NW and 796 ft. from NE lines of Sec. 2, Blk. 1, W.&N.W. Sur. ....Cellar.

William Little's No. 1 Reichard & Dehle, 1,820 ft. from NE and 1,120 ft. from SE line of Sec. 92, Blk. 1, W.&N.W. Sur. ..... T.D. 4,275 ft.; flowing 50 bbls. daily.

H. W. Martin's No. 4 Wheat, Ramsey, 990 ft. from SE and SW lines of Sec. 83, Blk. 1, W.&N.W. Sur. ..... Drlg. 710 ft.

Sinclair Prairie Oil Co.'s No. 2 Bell, 410 ft. from SE and 1,025 ft. from NE of Sec. 91, Blk. 1, W.&N.W. Sur. ..... T.D. 4,267 ft.; swabbing 180 bbls.

J. F. Black's No. 1 Covey, 2,310 ft. from NE line and 330 ft. from SE line of Sec. 3, Blk. 2, W.&N.W. Sur. ..... S.D. 225 ft.

PECOS COUNTY

Mack T. Anderson's No. 1 McKenzie, 660 ft. from S line and 660 ft. from W line of Sec. 1, Blk. 604 ..... Drlg. 1,130 ft.

Cardinal Oil Co.'s No. 17-E Tippett, 150 ft. from E line of W half and 720 ft. from N of No. 8-E, Sec. 40, Blk. 194, G.C.&S.F. Sur. ..... Waiting on orders; T.D. 481 ft.

Culberson Bros.'s No. 15-B Monroe, 735 ft. from N line and 1,350 ft. from E line of Sec. 39, Blk. 194, G.C.&S.F. Sur. ..... Location.

A. Fasken's No. 1 Reed, 169 ft. from W line and 194 ft. from N line of the N half of the 8-acre tract, Bob Reed Sur. ..... S.D. 1,115 ft.

Humble Oil & Ref. Co.'s No. 1 White, Baker, 1,320 ft. from N and E lines of Sec. 44, Blk. Z, T.C. Sur. ..... Drlg. 9,557 ft.

Mid-Kansas Oil & Gas Co.'s No. 18 Smith-Taylor, 1,296 ft. from S line, 1,320 ft. from W line, Sec. 33, Blk. 194, G.C.&S.F. Sur. ..... Location.

Mid-Kansas Oil & Gas Co.'s No. 24 Smith-Taylor, 350 ft. W of S half of Turner Tract No. 1, Sec. 33, Blk. 194, G.C.&S.F. Sur. ..... Road.

Mid-Kansas Oil & Gas Co.'s No. 25 Smith-Taylor, 344 ft. W of SE cor. of S half of Turner Trace No. 1, Sec. 33 ..... S.D. 750 ft.

Mid-Kansas Oil & Gas Co.'s No. 26 Smith-Taylor, 395 ft. S and 344 ft. E of SE cor. of S half of Tract No. 1 ..... Cellar.

Mid-Kansas Oil & Gas Co.'s No. 1 Turner, 350 ft. from N line and 350 ft. from W line of Turner Sur. No. 3 .. S.D. 590 ft.

Mid-Kansas Oil & Gas Co.'s No. 13-H Yates, 405 ft. S of N line of Sec. 32 and 344 ft. W of SE cor. of S half of Tract No. 1 ..... Location.

Mid-Kansas Oil & Gas Co.'s No. 13-H Yates, 405 ft. S of N line of Sec. 32 and 344 ft. E of SE cor. of S half of Tract No. 1 ..... Location.

Mid-Kansas Oil & Gas Co.'s No. 38-A Yates, 250 ft. E and 205 ft. S from the NE cor. of Turner Tract No. 3 in Sec. 34½, I. G. Yates Sur. ..... Location.

Mid-Kansas Oil & Gas Co.'s No. 39-A Yates, 150 ft. N and 250 ft. W of the NW cor. of Turner tract No. 4, in Sec. 34½, I. G. Yates Sur. ..... Cellar.

Mid-Kansas Oil & Gas Co.'s No. 40-A Yates, 344 ft. from E line and 395 ft. from N of SE cor. of S half of Turner Tract No. 1 ..... S.D. 680 ft.

Mid-Kansas Oil & Gas Co.'s No. 34-B Yates, 1,088 ft. from N line and 498 ft. from W line of Sec. 61, I.&G.N. Sur. ..... S.D. 1,107 ft.

Simms Pet. Co.'s No. 2 A. J. Devlin, 330 ft. from the N line and 330 ft. from the E line of the most easterly NE cor. of Sec. 2, John D. Duval Sur., Abst. No. 3,824 ..... Location.

Tex-Mex Pet. Co.'s No. 1 Netterville, 5,610 ft. from S and 330 ft. from W of Sec. 59, Blk. 8, H.&G.N. Sur. .. Rig up.

Trans-Texas Oil Co.'s No. 1 Caldwell, 330 ft. from E line and 330 ft. from S line of Sec. 27, Blk. 40, Twp. 9, T.&P. Sur. ..... S.D. 340 ft.

REAGAN COUNTY

Big Lake Oil Co.'s No. 15-C University, Sec. 12, Blk. 2 .. Drlg. 1,961 ft.

E. P. Kirschner and White's No. 1 W. A. White and McIntosh, 730 ft. from E and 800 ft. from N of Sec. 1,223, E.L.R.R. Sur. ..... T.D. 2,765 ft.

REEVES COUNTY

Grisham-Hunter Corp.'s No. 1 fee, 1,320 ft. from N line, 1,320 ft. from the E line of Sec. 10, Blk. 50, Twp. 8, T.&P. Sur. ..... Drlg. 1,215 ft.

Hugo Freels' No. 1 B. Greenman, 330 ft. from NE line and 331 ft. from SE line of Sec. 21, Blk. 2, H.&G.N. Sur. ..... Shot 220 qts. from 3,778-3,980 ft.; no results; S.D.; T.D. 3,985 ft.

C. H. Lockhart et al's No. 1 W. D. Johnson, 330 ft. from N line and 330 ft. from W line of Sec. 3, Blk. C-13, P.S.L. Sur. ..... Moving in material.

RUNNELS COUNTY

Agnew & Sons' No. 2 Fowler, 1,165 ft. from S and 150 ft. from W of NE cor. of Blk. 23, N. Travis Sur. .... T.S. 2,533 ft.; 150 ft. of oil in hole; T.D. 2,549 ft.

Agnew and Currie's No. 1 H. E. Wade, 2,640 ft. from N line and 330 ft. from E line of Sec. 34, Domingo Diaz Sur. No. 533 ..... Set surface csg.; T.D. 33 ft.

Anderson et al's No. 1 W. F. James, 330 ft. from N and W lines of Subdiv. No. 36, Norvell Travis Sur. ..... Spudded and S.D.

Castor & Anderson et al's No. 1 W. F. James, 174 ft. from W line of Subd. No. 36, Norvell Travis Sur. No. 533 ..... S.D. 910 ft.

Golden Pet. Corp.'s No. 3 McMillan, 730 ft. from W and 330 ft. from N of Subdiv. No. 22, N. Travis Sur. No. 533 ..... Aver. 80 bbls.; may drill deeper; T.D. 2,582 ft.

Melrose Oil Co.'s No. 1 L. P. Woods, 150 ft. from NE lines and 2,475 ft. from W line of survey, Willett Holmes Sur. No. 100 ..... Drlg. 1,320 ft.

W. S. Sawyer et al's No. 1 Giesecke, 1,311 ft. from N and 4,606 ft. from E lines of survey, Blk. 131, James Hughes Sur. ..... T.D. 2,033 ft.; showing oil and gas.

Prairie Oil & Gas Co.'s No. 1 T. B. Wade, 2,597 ft. from N and 2,140 ft. from E line of Subdiv. No. 10, Norvel Travis Sur. ..... Drlg. 2,210 ft.

R. Tucker et al's No. 5 McMillan, 350 ft. from N and W lines of that part of Subd. No. 32 in the D. Diaz Sur. ..... Drlg. 1,025 ft.

F. D. Williams' No. 1 J. L. Elkins, 2,325 ft. from E and 1,300 ft. N of SW cor. of Blk. 13, but in Blk. 13, N. Travis Sur. No. 533 ..... S.D. 1,400 ft.

SCHLEICHER COUNTY

John M. Cooper et al's No. 1 Bert Page, 1,320 ft. from N line, 1,470 ft. from W line of Sec. 40, Blk. L, G.H.&S.A. Sur. (old well being drilled deeper) ..... Fishing for tools; T.D. 5,055 ft.

SCURRY COUNTY

Coffield & Guthrie's No. 1 Bryce, 330 ft. from S and W lines of Sec. 133, Blk. 97, H.&T.C. Sur. (old well being drilled deeper) ..... Drlg. 2,300 ft.

TERRELL COUNTY

H. H. Sides' No. 1 Phelps, 2,157 ft. from N line and 2,482 ft. from the W line of Sec. 5, Blk. 4-A, G. W. Turley Sur. ..... S.D. 5,635 ft.

UPTON COUNTY

Gulf Prod. Co.'s No. 103 McElroy, 1,980 ft. from S and 660 ft. from W, Sec. 197, Blk. F, C.C.S.D.&R.G.N.G. Sur. ..... Drlg. 10,219 ft.

Texas Pacific Coal & Oil Co. and Humble Oil & Ref. Co.'s No. 13 J. H. Shirk, 990 ft. from the S line and 330 ft. from the E line of Sec. 1, Blk. 3, M.K.&T. Sur. ..... Drlg. 2,296 ft.

Theabotal Oil Co.'s No. 2 J. F. Lane, 1,650 ft. from N and 990 ft. from E of Sec. 36, Blk. 1, M.K.&T. Sur. ..... S.D. 250 ft.

Williams & Williams Drlg. Co.'s No. 1 Robbins, 1,666 ft. from S and 1,900 ft. from E, Sec. 4, G.C.&S.F. Sur.... S.D. 1,987 ft.

VAL VERDE COUNTY

South-Western Exploration Co.'s No. 1 E. K. Fawcett, 2,310 ft. from S and 2,310 ft. from E, Sec. 14, Blk. L, G.C.&S.F. Sur. ..... Rig up.

WARD COUNTY

Alexander's No. 1 Richter, 1,650 ft. from NW, 1,170 ft. from NE line of Sec. 27, Blk. 33, H.&T.C. Sur. ..... S.D. 1,460 ft.

Atlantic Oil & Prod. Co.'s No. 17 Johnson, 1,650 ft. from NE line and 1,650 ft. from SE line of Sec. 9, Blk. 34, H.&T.C. Sur. ..... Drlg. 1,550 ft.

Atlantic Oil & Prod. Co.'s No. 18 W. D. Johnson, 1,650 ft. from the NE line of Sec. 9, Blk. 34, H.&T.C. Sur.. Drlg. 400 ft.

L. G. Bradstreet et al's No. 1 Lee Monroe, 2,310 ft. from NE and 330 ft. from SE lines of Sec. 77, Blk. 34, H.&T.C. Sur. ..... S.D. 1,037 ft.

California Oil Co.'s No. 7 York, 1,650 ft. from SW line and 2,310 ft. from SE line of Sec. 10, Blk. 34, H.&T.C. Sur. ..... S.D. 2,304 ft.

California Oil Co.'s No. 8 York, 990 ft. from N and 2,310 ft. from SW of Sec. 10, Blk. 34, H.&T.C. Sur... Location.

C. C. Duffey et al's No. 1 Llano-Sloan, 1,650 ft. from NW and NE lines of Sec. 24, H.&T.C. Sur. ..... Drlg. 1,955 ft.

Gulf Prod. Co.'s No. 28 Hutchins, 2,310 ft. from S line and 330 ft. from W line of Sec. 4, Blk. F, G.M.M. B.&A. Sur. ..... Drlg. 2,588 ft.

Gulf Prod. Co.'s No. 27 Hutchins, 2,310 ft. from N line and 330 ft. from W line of Sec. 4, Blk. F, G.M.M.B.&A. Sur. ..... Set csg. 2,549 ft.

Gulf Prod. Co.'s No. 43 O'Brien, 2,310 ft. from N line and 990 ft. from W line, Sec. 17, Blk. F, G.M.M. B.&A. Sur. ..... T.D. 2,780 ft.

Gulf Prod. Co.'s No. 44 O'Brien, 2,310 ft. from N line, 330 ft. from W line of Sec. 17, Blk. F, G.M.M.B.&A. Sur. ..... S.D. 2,754 ft.

Gulf Prod. Co.'s No. 45 O'Brien, 1,650 ft. from S line and 330 ft. from E line of Sec. 17, Blk. F, G.M.M. B.&A. Sur. ..... Drlg. plug 2,552 ft.

Gulf Prod. Co.'s No. 46 O'Brien, 1,650 ft. from S line and 990 ft. from E line of Sec. 17, Blk. F, G.M.M. B.&A. Sur. ..... Drlg. 2,425 ft.

Gulf Prod. Co.'s No. 47 O'Brien, 330 ft. from E and 990 ft. from S. Sec. 17, Blk. F, G.M.M.B.&A. Sur. ..... Location.

Humble Oil & Ref. Co.'s No. 3 Richter, 2,316 ft. from NE line and 1,698 ft. from SE line of Sec. 27, Blk. 34, H.&T.C. Sur. ..... Drlg. 1,395 ft.

Jack Leidecker et al's No. 1 Shell-Sloan, 990 ft. from NE and 330 ft. from NW of Sec. 15, Blk. 5, H.&T.C. Sur. ..... T.D. 3,053 ft.

Rector Oil Co.'s No. 1 Lee Monroe, 660 ft. from NE and 660 ft. from SE of Sec. 62, Blk. 33, H.&T.C. Sur.. S.D. 4,661 ft.

Richardson's No. 1 Johnson, 330 ft. from NE line and 2,310 ft. from NW line of Sec. 22, Blk. 34, H.&T.C. Sur. ..... Location.

Sinclair Prairie Oil Co.'s No. 5 Archenhold, 2,310 ft. from SE and 2,310 ft. from SW of Sec. 23, Blk. 5, H.&T.C. Sur. ..... Drlg. 1,400 ft.

Tex-Mex Pet. Corp.'s No.2-B Shell-Sloan, 2,310 ft. from NE and 990 ft. from NW, Sec. 16, Blk. 5, H.&T.C. Sur. ..... Cellar.

Tex-Mex Pet. Corp. et al's No. 2 Cal-Archenhold, 990 ft. from NE and 330 ft. from SE, Sec. 23, Blk. 5, H.&T.C. Sur. ..... Drlg. 2,878 ft.

Tex-Mex Oil Co.'s No. 3-B Shell-Sloan, 1,650 ft. from NE and 330 ft. from NW lines of Sec. 16, Blk. 5, H.&T.C. Sur. ..... T.D. 2,609 ft.

Westex Oil Co.'s No. 1 Cynthia Monroe et al, 330 ft. from SE and 330 ft. from SW lines of NE 80 acres of Sec. 2, J. V. Borders Sur. ..... S.D. 1,610 ft.

WINKLER COUNTY

Colonial Oil Co.'s No. 4 Amerada-Scarborough 990 ft. from N line and 990 ft. from E line of Sec. 18, Blk. 74, P.S.L. Sur. ..... Drlg. 2,875 ft.

Magnolia Pet. Co.'s No. 5 Scarborough, 1,650 ft. from N line and 370 ft. from E line of Sec. 18, Blk. 74, P.S.L. Sur. ..... Drlg. 2,000 ft.

McCurdy & Easter's No. 1 Scarborough, 1,650 ft. from W and 2,310 ft. from S, Sec. 1, Blk. 77, P.S.L. Sur.... Rigging up and S.D.

Sid Richardson's No. 5-A Scarborough, 330 ft. from W and 190 ft. from S, Sec. 1, Blk. 22-C, P.S.L. Sur. ..... Moving in machine.

Richardson et al's No. 3 Scarborough, 150 ft. from S line and 2,310 ft. from W line of Sec. 1, Blk. C-22, P.S.L. Sur. ..... Drlg. 2,660 ft.

Richardson's No. 4 Scarborough, 330 ft. from N line and 2,310 ft. from W line of Sec. 1, Blk. 77, P.S.L. Sur... Drlg. 1,350 ft.

Richardson's No. 5 Scarborough, 150 ft. from S line and 1,740 ft. from W line of Sec. 1, Blk. C-22, P.S.L. Sur. ..... Drlg. 500 ft.

Richardson's No. 6 Scarborough, 330 ft. from N line and 2,310 ft. from W line, Sec. 18, Blk. 174, P.S.L. Sur. .. Drlg. 1,265 ft.

Sinclair Prairie Oil Co.'s No. 1-C Scarborough, 2,310 ft. from W and 102½ ft. S of SE cor. Sec. 1, Blk. 22-C, P.S.L. Sur. ..... Cleaning out; T.D. 3,035 ft.

Sinclair Prairie Oil Co.'s No. 2-C State-Scarborough, 102 ft. N and 1,650 ft. W of NE cor. of Sec. 1, Blk. 77, P.S.L. Sur. ..... T.D. 2,800 ft.

Tide Water Oil Co.'s No. 8 Scarborough, 105 ft. from S line and 990 ft. from E line of Sec. 1, Blk. C-22, P.S.L. Sur. ..... Cleaning out 3,016 ft.

Wildcat Operations in Texas Panhandle

Week Ending May 21

CARBON COUNTY

Company, well, farm name, section and block— Remarks:

American Ref. Co.'s No. 11 Burnett, 745 ft. from E line, 302 ft. from S line, Sec. 115, Blk. 5, I.&G.N. Sur. ..... Location.

American Ref. Co.'s No. 12 Burnett, 1,145 ft. from E line, 302 ft. from S line, Sec. 115, Blk. 5, I.&G.N. Sur. ..... Location.

Empire Gas & Fuel Oil Co.'s No. 1 C. S. Selber, 1,326 ft. from E line, 330 ft. from S line of SE Sec. 10, Blk. 7, I.&G.N. Sur. ..... Rig.

Stanolind O. & G. Co.'s No. 2 L. C. McConnell, 330 ft. from N line, 330 ft. from W line, E½ SW Sec. 187, Blk. 3, I.&G.N. Sur. ..... Drlg. 1,400 ft.

Texas Co.'s No. 2 E. Cooper, 330 ft. from S line, 330 ft. from W line, S½ Sec. 6, Blk. 9, I.&G.N. Sur. .... Location.

CHILDRESS COUNTY

Humble Oil & Ref. Co.'s No. 1 B. P. Smith, 1,327 ft. from S line and 1,327 ft. from E line of Sec. 27, H.&G.N. Sur., Blk. 9 ..... Drlg. 2,550 ft.

DALLAM COUNTY

Eben Warner's No. 1 Jarbie, 1,520 ft. from S line, 415 ft. from W line, Sec. 2, B.&B. Sur. ..... U.R.; T.D. 3,175 ft.

GRAY COUNTY

Anderson & Bean's No. 3 J. C. Vollmert, 330 ft. from S line, 330 ft. from E line, SW Sec. 140, I.&G.N. Sur., Blk. 3 ..... Cellar.

Ben Golding et al's No. 1 Massay, 330 ft. from W line of the E 40 ac. of S 60 ac. of the W 120 ac. of the N½ Sec. 41, Blk. 25, H.&G.N. Sur. ..... Location.

Cambrian Oil Co.'s No. 2 L. H. Webb, 990 ft. from N line, 330 ft. from E line of E½ NE Sec. 62, Blk. 25, H.&G.N. Sur. ..... Rig up.

Continental Oil Co.'s No. 8 Finley-Brown, 990 ft. from E, 330 ft. from S line, Sec. 32, Blk. B-2, H.&G.N. Sur. ..... Drlg. 3,000 ft.

Champlin Ref. Co.'s No. 7-D J. McLaughlin, 990 ft. from W line, 330 ft. from N line of NE Sec. 33, H.&G.N. Sur., Blk. 3-B ... Set csg.; T.D. 1,050 ft.
Dixon Creek O. & R. Co.'s No. 1 E. G. Barrett, 330 ft. from N line, 330 ft. from E line of 13-ac. tract in the SE cor. Sec. 127, Blk. 3, I.&G.N. Sur. ... U.R.; T.D. 2,010 ft.
Dixon Creek Oil Co.'s No. 1 D. W. Cary, 3,600 ft. from N line, 1,167 ft. from W line of Sec. 114, Blk. 3, I.&G.N. Sur. ... Set csg.; T.D. 3,010 ft.
Empire Gas & Fuel Oil Co.'s No. 1 Ragland, 330 ft. from N line, 330 ft. from E line of SE Sec. 128, Blk. 3, I.&G.N. Sur. ... Rig up.
Empire Gas & Fuel Oil Co.'s No. 2 W. C. Archer, 330 ft. from N line, 990 ft. from E line of N½ SW. Sec. 139, Blk. 3, I.&G.N. Sur. ... Drlg. 1,245 ft.
Gulf Prod. Co.'s No. 5 Ellis Cockrell, 330 ft. from N and E lines, S½ Sec. 2, Blk. M-21, T.C.R.R. Sur. ... Location.
Mazda-Shell's No. 4 Combs-Worley, 990 ft. from N line, 330 ft. from E line, Sec. 35, Blk. 3, I.&G.N. Sur. .. Rig.
Shell Pet. Corp.'s No. 2 B. E. Finley, 1,231 ft. from E line, 150 ft. from S line of N 479 acres of Sec 17, B. E. Chaney Sur. ... Drlg. 445 ft.
Skelly Oil Co.'s No. 8-A L. H. Webb, 990 ft. from N line, 990 ft. from E line of S½ Sec. 61, Blk. 25, H.&G.N. Sur. ... Spudding.
Skelly Oil Co.'s No. 6 W. C. Heaston, 330 ft. from N line, 330 ft. from W line of N½ NE Sec. 164, Blk. 3, I.&G.N. Sur. ... Drlg. 2,100 ft.
Sinclair Prairie Oil Co.'s No. 7 P. A. Worley, 990 ft. from N line, 330 ft. from E line of NW Sec. 36, Blk. 3, I.&G.N. Sur. ... Set csg. 2,838 ft.
Southwest Prod. Co.'s No. 1 T. Cobb, 1,320 ft. from S line, 990 ft. from E line, NE Sec. 184, Blk. 3, I.&G.N. Sur. ... Location.
Stanolind O. & G. Co.'s No. 3-C W. E. Cobb, 1,320 ft. from E line, 330 ft. from S line of SE Sec. 165, Blk. 3, I.&G.N. Sur. ... Rig up.
Stanolind O. & G. Co.'s No. 1-B W. E. Cobb, 330 ft. from N line, 330 ft. from E line of SW Sec. 165, Blk. 3, I.&G.N. Sur. ... Rig up.

HUTCHINSON COUNTY

Alma Oil Co.'s No. 2 D. E. Johnson, 330 ft. from N line, 990 ft. from W line, NW Sec. 47, Blk. 24, H.&G.N. Sur. ... Location.
Badger Oil Co.'s No. 6 Lewis, 330 ft. from S line, 330 ft. from E line, SE Sec. 8, Blk. 25, B.S.&F. Sur. ... Location.
Huber Petroleum Co.'s No. 2-A J. F. Weatherly, 990 ft. from S line and 330 ft. from W line of E half SE Sec. 26, A.&B. Sur., Blk. Y ... Drlg. 1,890 ft.
J. R. Phillips et al's No. 1 Tom Lewis, 330 ft. S and W of the NE cor. NE Sec. 7, B.S.&F. Sur., Blk. M-22. . Prepare to shoot; T.D. 2,977 ft.
Harry Stekol's No. 1-G J. A. Whittenburg, 330 ft. from W line, 990 ft. from N line, Sec. 89, G.C.&S.F. Sur., Blk. 3, but located in Hannah Prewitt Sur. No. 3 ... Rig up.
Ortex Oil Co.'s No. 1 N. A. Steinson, 930 ft. from N line, 390 ft. from E line of Sec. 7, T.C.R.R. Sur. .. Rig up.
Texas Co.'s No. 1 W. E. Herring, 1,200 ft. from E line, 1,200 ft. from N line of W 1,594 acres of the E. Almaguire Sur. ... Spudding.
Tripplehorn Bros.' No. 2 R. C. Ware, 330 ft. from E line and 990 ft. from S line of E half NE Sec. 123, Blk. 4, I.&G.N. Sur. ... Drlg. 2,200 ft.

KNOX COUNTY

C. C. Christie's No. 1 Moore, Sec. 87, Blk. 45, H.&T.C. Sur. ... Location.

MOORE COUNTY

Phillips Pet. Co.'s No. 1 J. C. Wilson, Sec. 157, Blk. T-3, T.&N.O. Sur. ... Rig up.

WHEELER COUNTY

Alma Pet. Co.'s No. 1-B Johnson, 330 ft. from N line, 330 ft. from W line, W½ NE Sec. 47, Blk. 25, H.&G.N. Sur. ... Bldg. rig.
Bowers & Carver's No. 1 L. B. Sims, 330 ft. from N line, 330 ft. from E line of SW SE Sec. 60, Blk. 17, H.&G.N. Sur. ... Rig up.
Mid-Continent Pet. Corp.'s No. 4 J. S. Carwile, 990 ft. from S line, 990 ft. from E line, Sec. 51, Blk. 24, H.&G.N. Sur. ... U.R.; T.D. 2,180 ft.
Dumar Oil Co.'s No. 1 J. W. Grogan, 660 ft. from N line, 660 ft. from W line of N½ NW Sec. 57, Blk. 23, H.&G.N. Sur. ... Drlg. 1,100 ft.
Dumar Oil Co.'s No. 1 J. K. Krizon, 660 ft. from N line, 660 ft. from W line of N½ Sec. 101, Blk. 23, H.&G.N. Sur. ... Drlg. 305 ft.
Dumar Oil Co.'s No. 1 P. Ftak, C SE Sec. 99, Blk. 23, H.&G.N. Sur. ... Set csg.; T.D. 1,742 ft.
Mid-Continent Pet. Corp.'s No. 6 J. S. Carwile, 990 ft. from N line, 990 ft. from E line of NE Sec. 51, H.&G.N. Sur., Blk. 24 ... Rig up.
Mid-Continent Pet. Corp.'s No. 5 J. S. Carwile, 990 ft. from N and W lines, NE Sec. 51, Blk. 24, H.&G.N. Sur. ... Swabbed 20 bbls.; will D.D.; T.D. 2,330 ft.
Myers & Kennedy's No. 1 Harvey, 660 ft. from S and E lines of NW Sec. 67, Blk. 13, H.&G.N. Sur. ... Drlg. 1,940 ft.
Shell Pet. Corp.'s No. 1 Bush, 330 ft. from N line, 330 ft. from E line, N½ NE Sec. 48, Blk. 24, H.&G.N. Sur. ... Fishing 435 ft.
Smith & Tharp's No. 1 T. J. DeSpain, 160 ft. from S line, 160 ft. from W line of NE NW Sec. 52, H.&G.N. Sur., Blk. 24 ... Rig up.
Underwood and Cook's No. 1 Farren, C SE NW Sec. 34, Blk. 24, H.&G.N. Sur. ... Location.

Wildcat Operations in Southwest Texas

(Continued from Page 47)

A. A. Wietzel's No. 1 fee, F. Ricardo Sur. ... T.D. 1,795 ft.; S.D.
Trawalter Oil Co.'s No. 2 fee, Jett Sur. ... Drlg. 1,555 ft.

BURLESON COUNTY

Brush & Hays' No. 1 C. W. Young, 150 ft. from SW line and 780 ft. from SE line of 140-ac. tract in Bird Sur. (7 mi. SE of Caldwell) ... T.D. 309 ft.; S.D.

CALDWELL COUNTY

S. S. Cargill's No. 2 Damereau, 150 ft. from W line, 450 ft. from N line of D. Cooper Sur. ... T.D. 2,261 ft.; top Edwards 2,260 ft.; show oil; W.O.C.
F. H. Etheridge et al's No. 1 Perry, 300 ft. from SE line and 300 ft. from NE line of 27-ac. lease in P. Martinez Sur. (N of Lytton Springs) ... Rigging up and S.D.
Wilford Keen et al's No. 1 Wm. Ewalk, 150 ft. from E line and 150 ft. from N line of 136-ac. tract, or 1,650 ft. from N and 1,300 ft. from E lines of Jas. George Sur. (3½ mi. from Lockhart) ... Drlg. shale 1,910 ft.
J. Edward Mills et al's No. 1 Emma Johnson, 1,650 ft. from N line and 4,250 ft. from W line of Jas. Pinchback Sur. (6 mi. SE of Lockhart) ... Sand 2,111 ft.; slight show oil; S.D.
Webster Oil & Gas Co.'s No. 1 Robinson, 770 ft. S and E from NW cor. of 100-ac. tract in John A. Neill Sur. . S.D. 2,290 ft.

CALHOUN COUNTY

Continental Oil Co.'s No. 1 American Natl. Realty Co., center of NE of Sec. 6, Blk. C, Calhoun Cattle Co., Subd. of Port O'Connor pasture (9 mi. SE of Seadrift) ... Moving in rig.
Heep Oil Corp.'s No. 2 P. Welder, Day Land & Cattle Co., A-228, center of Sur., 2¾ mi. W of SW of McKinney, 650 ft. NW line and 2,950 ft. SW line of Sur. (4 mi. W of Clark) ... T.D. 915; W.O.C.
Heep Oil Corp.'s No. 1 P. Welder, J. M. Rice Sur. ... Coring 5,988 ft.

DEWITT COUNTY

Keystone Royalties' No. 1 L. T. Burns, 1,100 ft. from W and 600 ft. from S line of 303-ac. tract in L. G. Belcher Sur. ... Rig.
Slick-Urschel No. 4 Potter, 3,170 ft. from SE line of 591-acre tract, 990 ft. SE of No. 3. ... Bldg. derrick.

DUVAL COUNTY

Cecil Best's No. 1 Parr, 1,320 ft. from SE line and 990 ft. from NE line of Sur. 134 (10 miles W and 2 miles N of San Diego) ... Drlg. sandy shale 3,245 ft.
Buffalo-Texas Drlg. Synd., Inc.'s No. 1 Escobar, 700 varas from W line, 1,000 varas from N line of 830-ac. tract in Francisco grant ... Coring 2,410 ft.
Continental Oil Co.'s No. 2-A Clara, Driscoll Sevier, 3,675 ft. S and 1,000 ft. from E line of Sec. 448 ... Location.
W. C. McBride's No. 1 Hagist, 330 from N and E lines of SE 80 ac. of Sec. 1 ... Location.
J. R. B. Moore's No. 1 W. R. Peters, Survey 36 ... Location.
South Coast Oil Co.'s No. 1 C. M. Robinson, Sec. 114 .... Location.
Sun Oil Co.'s No. 1 Moreno, 330 ft. from E line and 2,000 ft. from S line of NW cor. of H.&W. Sur. 537, in Sec. 540 (5 mi. S of San Diego) ... Rigging up.
Windsor Oil Co.'r No. 2-B W. R. Peters, Survey 33 ... Completed, 25,000,000 ft. gas daily; T.D. 2,721 ft.
Witherspoon et al's No. 1, Richardson Sur. No. 5 ... T.D. 1,005 ft.; S.D.
Louis Yeager's No. 1 Yeager, 694 ft. from W line, 1,527 ft. from S line of Sur. No. 38 ... T.D. 865 ft.; S.D.

EDWARDS COUNTY

Love and Evans' No. 1 Steve Brown, 660 ft. from N and E lines of Sec. 66, G.W.T.&P.R.R. Sur., 15 miles W of Rock Springs ... S.D. 3,002 ft.

FRIO COUNTY

Amerada Pet. Co.'s No. 2 Haiff & Oppenheimer, begin. at most easterly N cor. of John H. Gibson Sur. No. 16, thence SE along NE line of Sur. 2,100 ft., thence SW at right angles 800 ft. (4 mi. SW of Pearsall) . Drlg. 3,247 ft.

GILLESPIE COUNTY

Dorre et al's No. 3 Lindig ... Drlg. 137 ft. (no report)
Powers et al's No. 2 Lindig, 12,700 ft. from S line, 1,333 ft. from W line of Maria Josephine Guerrera Sur. ... Location.

GOLIAD COUNTY

H. H. Weinert's No. 1 Grady Smith, 330 ft. from NW line and 330 ft. from SW line of 142-ac. tract in B. & B. Sur. No. 25 (N part of county) ... T.D. 3,574 ft.; Pettus sand 3,053-62 ft.; testing.

GUADALUPE COUNTY

J. E. Clark's No. 1 M. T. Howell, 9,050 ft. from N line of Howell tract and 1,588 ft. S of highway and 200 ft. from W line of 200-ac. tract of Darst Sur. No. 19 ... Drlg. shale 1,209 ft. (no report).
M. W. Eiser's No. 2 Wells, 1,700 ft. from S line, 200 ft. from W line of Blk. 3, Subd. 1, J. de la Baume Sur. ... Location.
Holderfield et al's No. 1 Reed ... Drlg. shale 520 ft.
Adolph Seideman's No. 1 Seideman, 280 ft. from NE line, 470 ft. from NW line of Mrs. Adolph Seideman 147.5-ac. tract (Subd. 110) in Antonio Maria Esnaurrizer Sur. No. 11 ... T.D. 2,730 ft.; S.D.

HAYS COUNTY

J. C. Crowder's No. 1 Burnett, 2,370 ft. from E line, 1,400 ft. from N line of tract in J. Ingram Sur. .... T.D. 430 ft.; set csg ; S.D

HIDALGO COUNTY

D. D. Oil Co.'s No. 1 Mrs. L. George, 330 ft. from N and W lines of 40-ac. tract in Share 13, Porcion 41. . Location.
Davis & Harrison's No. 1 Lula George, 300 ft. from S and 700 ft. from E lines of Tract 13, Porcion 41, Ancient Jurisdiction of Reynosa ... Drlg. 1,022 ft.
Otto Woods' No. 1 John Lawrence, 530 ft. from W. 300 ft. from N line of Tract 274, Porcion 39, Ancient Jurisdiction of Reynosa ... Drlg. 1,050 ft.
Union Sulphur Co.'s No. 1 American Rio Grande L. & I. Co., 400 ft. S and W of NE cor. of Lot 229, Blk. 59 (½ mi. N of Mercedes) ... Drlg. 5,630 ft.

JIM WELLS COUNTY

Magnolia Pet. Co.'s No. 3 Seeligson, 330 ft. from S line and 1,320 ft. W of No. 2 in V. Canales Sur. No. 218. . T.D. 3,238 ft.; est. 150 bbls. day.
Plymouth Oil Co.'s No. 1 Cuero Cattle Co., 330 ft. from S and W lines of H.T.&B. Sur. No. 7, 2½ miles W from Alfred ... Rigging up.
Putnam and Bode's No. 1 McCarley, 600 ft. from SE line and 1,500 ft. from NE line of 300-ac. tract, Blk. A, of W. H. Bode Subdivision of Wallace D. Wade Ranch ... Show gas 2,806 ft.; drlg. 2,878 ft.

KARNES COUNTY

George Ray's No. 1 Radford, 666 ft. from SW and 3,422 ft. from SE lines of 753-ac. tract in Nichols Sur. (4 miles NE of North Pettus Field) ... T.D. 3,910 ft.; S.D.
C. J. Webster's No. 1 J. B. Cannon, 1,140 ft. from N line, 250 ft. from E line of 80-ac. tract in Lambrano Sur. ... T.D. 1,790 ft.; standing, may deepen to Yegua.

KENDALL COUNTY

Martin's No. 1 Houston, Thomas Leople Sur. No. 761 .... Top black shale 1,028 ft.; T.D 1,985 ft.; to deepen
A. P. Pierce's No. 1 Werner, in SW cor. of 40-ac. tract, 150 ft. from S and W lines of J. F. Torrey Sur. ... T.D. 992 ft.; standing

KERR COUNTY

Edminston & Walker's No. 1 Whitworth, 1,160 ft. from S line and 1,333 ft. from E line of Sec. 1,439 of the H.E.&W.T. Sur. ... Drlg. 110 ft.
Jeff Love and Eastland Oil Co.'s No. 5-E Jeff Love, 1,500 ft. SE of No. 1 and 1,580 ft. from SE cor. and 300 ft. from N line of Sec. 1,591 ... Spud.
G. F. Schreiner's No. 3 Love, 1,420 ft. from W line, 1,360 ft. from S line of Sur. No. 1,594 ... Location.
Van Duyn & Moore's No. 1 Nowlin, 2,000 ft. from E line, 2,200 ft. from N line of Jas. R. Bettner Sur. No. 99 ... T.D. 1,040 ft.; standing

KLEBERG COUNTY

J. S. Brown's No. 1 Antone Dietz, Sec. 7, Hotch estate .. T.D. 2,845 ft.; S.D.
Harry Clark's No. 1 V. J. Kivlin, 360 ft. from E line, 400 ft. from S line of Sec. 39, Blk. 8, Kleberg Town & Improvement Co. Sur. ... T.D. 2,350 ft.; D.S. test 2,315-19 ft.; four joints mud, oil and sand; S.D.

LASALLE COUNTY

G. O. Ball's No. 1 J. M. Martin, 330 ft. from S and W lines of Martin 485.6-ac. tract, Sur. 683 ... Moving in.

LEE COUNTY

Jas. B. Pederson's No. 1 Turner, David Hudson Sur. .... Rigging up and S.D.
H. A. Sheriack's No. 1 Otto, 736 ft. from NW line, 1,310 ft. from NE line of 57.5-ac. tract in Thomas Morrow Sur. ... Drlg. 1,250 ft.; no report.

LIVE OAK COUNTY

Holmes & Goodwin's No. 1 fee, 1,000 ft. from N line and 330 ft. from W line of 326-ac. tract in Brigada Haughty Sur. ... Drlg. shale 585 ft.
Witherspoon Oil Co.'s No. 2 H. Clements, 100 ft. S of No. 1 junked hole, Ellz. Jordan Sur. ... Cemented 7-in. csg. at 515 ft.; W.O.C.
Ike Taylor's No. 2 Griffith, 1,200 ft. from E line and 1,151 ft. from S line of lease in Tract 5, D. Osborne Sur. ... Rigging up.

MAVERICK COUNTY

Ollie Wright's No. 1 L. Little, 500 ft. from N line, 3,500 ft. from E line of Potter Sur. No. 65 (10 mi. N of Eagle Pass) ... T.D. 602 ft.; S.D.

McMULLEN COUNTY

Bedwell's No. 1 Brown, Sur. No. 54 ... T.D. 771 ft.; S.D.

Al Buchanan's No. 1 Hagist, 990 ft. from E and 330 ft. from N lines of N half of NE Sec. 13 ..... Coring sand 1,240 ft.
Cotulla's No. 1 Gordon, 330 ft. from N and W lines of 8¼ of Sec. 127 ..... Drlg. 2,360 ft.
Gleason et al's No. 1 Miles, Chas. Stephens Sur. ..... Location.
Henshaw Bros.' No. 1 Lachusa, 2,800 ft. from N and E lines of Sur. No. 478 ..... Drlg. 2,285 ft.
Lefevre & Spice's No. 2 Hagist, 2,034 ft. due W of the Lefevre & Spice No. 1 Hagist, Sec. 17 ..... Drlg. 615 ft.
Loma Oil Co.'s No. 1-A Jacob, start at SW cor. of Sur. No. 7, go S 4,963 ft., thence W 330 ft. in Sur. No. 516 ..... T.D. 875 ft.; W.O.C.
Don Long's No. 1 Nueces Land & Livestock Co., Sec. 111 ..... Location.
W. C. McBride Co.'s No. 1 Hagist, 330 ft. out of the NE cor. of S half of SE Sec. 1 (⅛ mi. E of Trinity Drillers' No. 1 Hagist dry hole) ..... Location.
C. C. Schumway, Inc.'s No. 5 Shiner, 330 ft. from N and W lines of NE of Sec. 66 of Schumway Subd. of Shiner Ranch ..... Coring, no show 2,095 ft.
C. C. Shumway's No. 6 Shiner, 2,310 ft. from N line and 330 ft. from E line of NE¼ of Section 62 of the Shumway Subdivision of the Shiner Ranch..... Moving in.

MILAM COUNTY

O. H. Birdwell's No. 1 J. R. Bartek, 150 ft. from N line, 180 ft. from W line of 88-ac. tract in J. A. de Pena Sur. ..... T.D. 1,559 ft.; show of oil est. ⅛ bbl. per day.

MEDINA COUNTY

Scoggins & Sanders' No. 1 L. W. Burell, 150 ft. from E line, 1,750 ft. from N line of M. E. Gage Sur. 395. Drlg. 975 ft.

NUECES COUNTY

Diadem Oil Co.'s No. 1 J. C. Mayo, 1,000 ft. along line from SE cor. in NW direction, thence due N 300 ft. (near Robstown), Sec. 23 ..... Fsg. stuck drill stem 4,307 ft.
Nuco Oil Co.'s No. 1 Synthia Bluntzer, Herrera Sur., 2,240 ft. from S line, 380 ft. from W line of 639.37-ac. tract ..... Drlg. shale 4,762 ft.
Sullivan and Texon Royalty Co.'s No. 1 Simmons & Perry, 330 ft. from S and W lines of NE of square 640-ac. section out of SW cor. of Simmons & Perry tract, 2 miles east of Agua Dulce Field ..... Coring 4,942 ft.
United Prod. Co.'s No. 2 Tolbert, 1,250 ft. from S line and 120 ft. from W line of Blk. 9, Sec. 4, Puenticitas grant ..... Drlg. 4,995 ft.

REAL COUNTY

H. J. Heartwell et al's No. 2 L. J. Haby, 694 ft. from W line and 2,153 ft. from S line of A.B.&M. Sur. No. 175 ..... Drlg. 1,450 ft.

SAN PATRICIO COUNTY

Bunte et al's No. 1 C. C. Smith, start at NE cor. of F. Miller tract, go E 2,338 ft., thence S at right angles 819 ft., A. Armstrong Sur. (3 mi. SW of Odom) ..... R.U.
Carpenter et al's No. 1 Sadler, 300 ft. each way out of SE cor. Blk. 1, Sec. 33, T. Peres Sur. ..... T.D. 603 ft.; W.O.C.
Plymouth Oil Co.'s No. 1 Welder, 4,700 ft. N of Chiltipin Creek, 900 ft. from W line of J. M. and F. Portilla Sur., 1⅛ miles N from Sinton ..... T.D. 6,602 ft.; P.B. 5,200 ft.; drilled to 5,434 ft.; flowing 5½ bbls. hr. of 50 gr. oil ⅝-in. ch.; T.P. 2,100 lbs.; R.P. 2,225 lbs

STARR COUNTY

Chas. H. Andrews et al's No. 1 A. Guerra, San Jose grant, 330 ft. from N and 150 ft. from E line of Sec. 6 (NE part of county) ..... T.D. 310 ft.; S.D.
B. & B. Oil Co.'s No. 2 Kelsey Bass, 330 ft. from W and S lines of Blk. 12 of Subd. of Porcions 86 and 87, jurisdiction Camargo ..... Rigged up and S.D.
Cooper & Andrews' No. 1 J. M. Martinez, SW cor. of Sec. 135 ..... Old well, to deepen; T.D. 3,200 ft.
Dean Bros.' No. 1 M. M. Garcia, 2,150 ft. from S line, 4,600 ft. from W line of Sur. No. 916 ..... Drlg. 240 ft.
Goodwin-Yantis' No. 5 Anna K. Bass, 150 ft. from S and E lines of Blk. No. 10, Sur. No. 3, Porcion 87 ..... Gas sand 685 ft.; W.O.C.
Goodwin-Yantis' No. 4-A Kelsey Bass, 1,300 ft. NW of No. 3 in Porcions 86 and 87, Ancient Jurisdiction of Camargo ..... T. D. 625 ft.; S.D.
Great Plains Oil Co.'s No. 1 Sanchez, 660 ft. from W line, 330 ft. from S line of SE NW of Sur. No. 344 .. Drlg. 2,905 ft.
McDonald & Campbell's No. 1 C. C. Bowman, 330 ft. from N and W lines of Blk. 13 ..... Drlg. 2,900 ft.
McDonald's No. 1 E. A. Pfley, 2,600 ft. from S and W lines of Sur. 933 ..... Drlg. 2,100 ft.
Merle Gundy's No. 1 Block, NW of Sur. 167 ..... Rigging up.
Myers, Sullivan & Jenkins' No. 1 Starr County Cattle Co., 330 ft. from N line, 330 ft. from W line, Blk. 62, Porcion 89, Share 60 ..... Cored sand 2,562 ft.; prep. to test. T.D. 2,653 ft.; tested S.W.; to deepen.
Sun Oil Co.'s No. 6-C, V. C. deGuerra et al, 3,300 ft. from NW and 660 ft. from SW lines of Share 1, Saratoga grant, NW Starr County ..... Rigging up.
Sun Oil Co.'s No. 7-B Guerra & Son, 5,035 ft. from SW lines and 2,635 ft. from SE line, Las Cuevitas Sur., NW part of County ..... Drlg. 1,655 ft.
William F. McGinley's No. 1 Starr County Cattle Co., 330 ft. from S, 330 ft. from W line, Blk. 20, Jeffries-Lambeth Subd. of Porcion 89, Ancient Jurisdiction of Camargo ..... T.D. 2,474 ft.; W.O.C.; showed for good gasser.
B. L. Younkins' No. 2 Kelsey Bass, Porcion 86 ..... Derrick.

UVALDE COUNTY

Evans & Johnson's No. 1 Farris, J Hammons Sur. ..... Drlg. 1,095 ft.; no report.
Humble Oil & Ref. Co.'s No. 1 R. L. Anderson, 7,450 ft. SW of NE line and 9,100 ft. SE of NW line of J. J. Guerra Sur. (3 mi. NE of Uvalde) ..... Drlg. 215 ft.

WEBB COUNTY

J. W. Edwards' No. 1 M. Vela, 766 ft. from E and 450 ft. from N line of Blk. 9, Sur. 267 ..... Drlg. shale 1,300 ft. (no report).
Quintana Petroleum Co.'s No. 2 Duval Ranch, Block 11, Survey 2, Zapata County School Land Survey... Location.
Shankel et al's No. 1 Saldivar, Sur. 452 of J. V. Borrego grant ..... R.U.
South Texas Oil Co.'s No. 12 Laurel, Block 4, Survey 270.. Completed; T.D. 1,777 ft.; 20,000,000 ft. gas; 600 lbs. R.P.
United Production Co.'s No. 1 Bruin, Block 42, Survey 8, Mariano Arispe Grant, E of Bruni City ..... Drlg. 2,547 ft.
Weekley Oil Corp.'s No. 1 R. Salvidor, 1,269 ft. from E line and 243 ft. from N line of Sec. 657, Borrego grant (SE part of county) ..... Rigged up and S.D.

WILSON COUNTY

A. P. George's No. 1 fee, 160 ft. from SE line and 300 ft. from SW line of 86.32-ac. tract in Canuto Diaz Sur. ..... Drlg. 620 ft.
Pfiel & Vogel's No. 1 Gutzeit, Flores grant, 150 ft. N of road and 150 ft. from W line of farm, 7 mi. NW of Floresville ..... S.D. 809 ft.

WILLIAMSON COUNTY

Atlantic-Pacific Corp.'s No. 1 W. C. Daniel, 500 ft. from SW line, 2,100 ft. from SE line of Washington P. Reese Sur. No. 3 ..... T.D. 642 ft.; rig moved off.
McLean et al's No. 2 R. C. Miller, 300 ft. to S line, 100 ft. to W line of tract, B. Manlove Sur. ..... T.D. 2,300 ft.; cleaning out.

ZAPATA COUNTY

H. V. & W. Oil Co.'s No. 1 Cuellar ..... Drlg. 815 ft.
R. B. Morrison's No. 1 Y. and R. Ramirez, 330 ft. from NE line and 330 ft. from SE line of Blk. 4, Share 20, Porcion 19 (5 mi. from Starr County line) ..... T.D. 44 ft.; W.O.C.
Muckelroy's No. 1 Flores, on NE line and 75 ft. from SE line of Lot 2, Blk. 30, Muckelroy Subd. of Porcion No. 37 ..... Derrick.
Joe Palmer's No. 11 S. Vela, 330 ft. from NE and SE lines of Blk. 170, Share 4 of L. Grillo grant, (3 mi. E of Redondo Pool) ..... Moving in.
The Texas Co.'s No. 46 Jennings, 750 ft. N and 12 deg., 30 min. E of No. 44 in Cerrito Blanca grant ..... T.D. 1,216 ft.; run tubing.

Southwest Texas Proven Areas

Week Ending May 19

NORTH DALE POOL—BASTROP COUNTY

Watt L. Saunders' No. 1 Harris, 1,100 ft. from SW line, 2,830 ft. from NW line of John Maximillan Sur. No. 22 ..... Top Austin 2,149 ft.; T. D. 2,305 ft. chalk (no report).

NORTH PETTUS FIELD—BEE COUNTY

United Prod. Co.'s No. 45 Ray, 2,332 ft. SW of No. 13 and parallel with N line of tract, thence SE at right angles from N line of tract, W. J. Porter Sur. ..... T.D. 3,695 ft.; to deepen.

ECKERT POOL—BEXAR COUNTY

Alamo Nat. Gas Co.'s No. 2 Coreth, 300 ft. SE of Humble's No. 2 Coreth in A. Stafford Sur. ..... T.D. 1,055 ft.; set 6⅝-in. csg.; S.D.
J. F. Harrison's No. 4 F. Gembler, 150 ft. from NW line, 460 ft. from NE line of 88-ac. tract in J. Montes Sur. ..... T.D. 831 ft.; S.D.
S. J. Moore's No. 5 T. W. Masterson, 150 ft. from S line, 175 ft. from W line of 41-ac. tract in Miguel Gortaris Sur. ..... T.D. 736 ft.; 6⅝-in. csg.; S.D.
S. J. Moore's No. 4 T. W. Masterson, 150 ft. from S and W lines of tract in M Cartari Sur. ..... T.D. shale 695 ft.; S.D.

VON ORMY POOL—BEXAR COUNTY

Von Ormy Oil Co.'s No. 2 E. B. Carruth, 515 ft. from W line, 1,970 ft. from S line of 160-ac. tract out of 657-ac. tract in F. Rolen Sur. ..... T.D. 720 ft.; S.D.

EAGLE HILL POOL—DUVAL COUNTY

Shasta Oil Co.'s No. 3 J. R. Foster, 990 ft. from N line and 165 ft. from W line of 70-ac. tract in Sec. 206... Moving in rig.
Shasta Oil Co.'s No. 4 J. R. Foster, Sec. 206 ..... Set 10-in. at 42 ft.; T.D. 2,275 ft.; abd.

GOVERNMENT WELLS POOL—DUVAL COUNTY

Bridwell Oil Co.'s No. 3 C. W. Hahl, 860 ft. from W line and 330 ft. from S line of Lot 29, or 660 ft. E of No. 1 in Sec. 250 ..... T.D. 2,334 ft.; comp. 11 bbls. hr.
Bridewell Oil Co.'s No. 4 Hahl, Block 29, Survey 250.... Location.
Central Producers' No. 11 Tuck & Johnson, Sec. 42 ..... Set 10-in. at 23 ft.; Cole sand at 1,620-38 ft.; running liner at 2,306 ft.
Central Producers' No. 12 Tuck & Johnson, 330 ft. from N and W lines of SW SW Sec. 42 ..... 2,250 ft.; S.D.
Cox & Hamon's No. 12 State, Survey 60 ..... Comp., 10 bbls. per hour; T.D. 2,257 ft.
Humble Oil & Ref. Co.'s No. 22 Paul White, 330 ft. from N line and 3,224 ft. from E line of Sec. 249... T.D. 2,274 ft.; comp. 26 bbls. hr.
Luse & Cloyes' No. 1 Hagist, 330 ft. from N and W lines of Lot 13, Section 265 ..... T.D. 2,161 ft.; prep. to set csg.
McKay & Reed Bros.' No. 4 State, Survey 60..... Comp., 35 bbls. per hour; T.D. 2,271 ft.
McKay & Reed Bros.' No. 7 State, Survey 60..... Location.
McKay & Reed Bros.' No. 8 State, Survey 60..... Comp., 40 bbls. per hour; T.D. 2,234 ft.
McKay & Reed Bros.' No. 9 State, Survey 60..... Location.
Magnolia Pet. Co.'s No. 26 Duval County Ranch, Survey No. 208 ..... Comp., 75 bbls. oil per day. T.D. 2,328 ft.
Magnolia Pet. Co.'s No. 28 Duval County Ranch, Survey No. 208 ..... Location.
Magnolia Pet. Co.'s No. 4 Hahl-Riley, Survey No. 45.... Location.
Magnolia Pet. Co.'s No. 5 J. W. Riley, Survey No. 45 .... Comp., 5 bbls. oil per hour; T.D. 2,262 ft.
Parr Oil Co.'s No. 2 Duval Co. Ranch, 990 ft. from S line and 330 ft. from E line of W½ of SE of Sec. 363 ..... 2,101 ft. (no report).
J. D. Clair Smith's No. 1 W. P. Norton, Survey 62 ..... Location.
Sun Oil Co.'s No. 33 Weiderkehr, 330 ft. from S line. 990 ft. from E line of Sur. No. 359 ..... Location.
Sun Oil Co.'s No. 49 Weiderkehr, 660 ft. S of No. 48 and 660 ft. W of No. 46, Sur. 359 ..... Location.
Sun Oil Co.'s No. 57 Weiderkehr ..... T.D. 2,290 ft.; comp. 110 bbls. day
Texas Co.'s No. 9 Duvall County Ranch, 990 ft. N and W of SE cor. of Sec. 362, elevation 519 ft. ..... T.D. 2,292 ft.; W.O.C.
Sun Oil Co.'s No. 60 Weiderkehr, Survey 359..... Comp., 25 bbls. oil per hour; T.D. 2,311 ft.
Sun Oil Co.'s No. 61 Weiderkehr, Survey 359..... Location.
The Texas Co.'s 9-A Duval County Ranch, 330 ft. W of No. 8-A and 330 ft. from N line of lease ..... T.D. 1,501 ft.; abd.
Texas Co.'s No. 8-A Duval County Ranch, 2,320 ft. W and 330 ft. S of NE of Sec. 206 ..... T.D. 1,501 ft.; put on pump.; comp.
Trapshooter Reilly's No. 1-B C. W. Hahl, 200 ft. from W line, 330 ft. from S line of Blk. 26, Sur. 250 ..... T.D. 2,330 ft.; swabbing.

KINGSVILLE POOL—KLEBERG COUNTY

Ryals & Bartlett's No. 1 Fiato, 150 ft. from N line, 30 ft. from W line of NE SE Sec. 40, of Kleberg Town & Improvement Co. Sur. ..... W.O.C., 90 ft.

LUCAS POOL—LIVE OAK COUNTY

Houston Oil Co.'s No. 5 Cartwright, 1,150 ft. SW line and 1,775 ft. SW line of J. M. Colchado Sur. ..... T.D. 5,018 ft.; testing.

JACOB POOL—McMULLEN COUNTY

Jane Oil Co.'s No. 1 Lark, 150 ft. from S and 100 ft from W line of Blk. 13 ..... T.D. 1,048 ft.; testing.
C. R. Kennon's No. 1 Lark, 810 ft. from W line, 150 ft. from N line of 20-ac. tract, Blk. 27, Scrugham Sur. ..... T.D. 952 ft.; S.D.
Loma Oil Co.'s No. 23 Jacob, 660 ft. S of No. 11, 330 ft. from E line of lease, Sur. No. 7 ..... T.D. 1,002 ft.; S.D.
Loma Oil Co.'s No. 25 Jacob, 660 ft. E of No. 24, Sec. 5.. T.D. 1,057 ft.; W.O.C.

CUEVITAS POOL—STARR COUNTY

Sun Oil Co.'s No. 6-B, M. Guerra & Son, 2,310 ft. S of Starr and Jim Hogg County lines and 2,970 ft. W of E line of Los Cuevitas Sur. ..... T.D. 2,055 ft.; D.S. test 2,047-55 ft.; 280 ft. oil in 20 min.; no gas pressure; 1,800 ft. oil in hole. Testing.
Sun Oil Co.'s No. 5-C M. Guerra & Son, 1,320 ft. NE of No. 4-C La Sacatosa grant ..... Location.

AGUA DULCE—NUECES COUNTY

Camp et al's No. 2 King, 990 ft. S of N line, 330 ft. W of E line of Sec. 24, R. Garza Sur. ..... Coring 5,547 ft.
Garland Clymore's No. 2-A Ollie Purl, 660 ft. from E line and 660 ft. from S line of Blk. 4, Section 6, Ross Peters Subd. ..... T.D. 4,804 ft.; setting csg.

SAXET FIELD—NUECES COUNTY

South Mineral Oil Co.'s No. 1 J. W. Page, E. Villareal Sur., 471 ft. from E line, 160 ft. from S line of 150-ac. tract ..... T.D. 4,079, 4,073-79, D.S. test 5 bbls. oil, 75 lbs. W.P. through ¼-in. choke 5 min.; sidetracking 2,970 ft. Est. 20 bbls. day.

LOS OLMOS POOL—STARR COUNTY

Los Olmos O. & G. Co.'s No. 57 Kelsey Bass, 150 ft. from N line, 568 ft. from W line of SE SW Sec. 6, Porcions 75, 76 and 77 ..... T.D. 640 ft.; standing; depth corrected.

BYERSVILLE POOL—WILLIAMSON COUNTY

Otto Stolley's No. 1 Charles L. Byer, beginning at SE cor. of P. Cartwright Sur. SW 4,700 ft. along survey line then 950 ft. SE at right angles in P. Stoddard Sur. ..... T.D. 1,022 ft.; S.D.

JENNINGS POOL—ZAPATA COUNTY

O. W. Killam's No. 32 Cuellar, 1,410 ft. from NW line, 4,628 ft. from NE line of 17-ac. tract ..... Drlg. shale 1,932 ft.; D.S. test at 1,925-32 ft. showed salt water.

Activity Increasing in Arkansas With Operators Watching Two Tests South of Balcones Fault

By J. R. CRUMPTON
Staff Correspondent, Louisiana-Arkansas

SHREVEPORT, La., May 21. — All completions in this division during the past week were reported from the North Louisiana district and included among them were a number of wildcats. A total of 12 new locations were staked in North Louisiana and South Arkansas with the latter area taking the lead for the seven-day period for the first time since the El Dorado and Smackover boom days.

ARKANSAS

The Arkansas district has shown a decided reversal of form during the past few weeks with numerous wildcats drilling or locations staked for several more. Most of the activity is centered in the southwestern part of the state in Miller and Lafayette Counties, but Columbia, Ouachita and Union Counties are also showing signs of life. The limited Miller County Field, east of Texarkana, is making a determined effort to extend its production lines with more than half a dozen rigs nearing the pay horizon. The general opinion is that the best chance of opening up a new field in this area is south of the old Balcones fault, known locally as the Humble fault, in the southern part of Miller and Lafayette Counties. To this end, two wildcats are actively drilling in the former county and two are arranging to spud in in the latter within the next few weeks.

Earl F. Fox of Shreveport has closed a contract with A. F. Tarver, contractor, to drill his No. 1 Coleman in the NW NE Section 36-16s-25w, Lafayette County, a few miles west and south of the town of Lewisville. This well will attract more than usual attention as it will be drilled about 1,400 feet south of a well drilled by Mr. Fox and the late Frank Foster in the fall of 1932 in the SE Section 25-16-25. The log on this test revealed that it cut the fault, which had been proven to exist in this vicinity by the Humble Oil Co. in its exploration work in South Arkansas in 1925 and 1926.

Location South of Fault

The Fox & Foster well was on the down throw on the Nacatoch sand and faulted out the Blossom sand by cutting the fault about 50 feet below the base of the chalk. The present location is also about 1,000 feet south of a well drilled by Wilcox and others in 1921, which cut the fault in the chalk and had about 20 feet of saturated Blossom sand at about 2,250 feet. The latter test, however, was on the downthrow in the Nacatoch sand. From the logs of these two wells, there appears to be about 250 feet of down throw to the north with a very pronounced closure against the fault on the south side, which condition, if it exists, may bear out the prediction and belief of numerous operators that an oil field should be uncovered somewhere along this fault.

About 8 miles northeast of the Fox test, near the town of Stamps, Lafayette County, Andrew V. Erwin and J. K. Wadley of Texarkana are reported to have turned a portion of a large block to Benedum & Trees, independent operators of Pittsburgh. The acreage centers around Section 19-16-23, where a tentative location has been made, and is on the south side and immediately adjacent to the fault line continuing through that area to the northeast. The two Miller County tests bordering this fault are being watched closely. J. K. Wadley, trustee's No. 1 Dickert, Section 24-17-27, in the Fouke area, is coring at 3,567 feet, and to the southwest near the Texas-Arkansas line, E. L. Young, trustee's No. 1 Patterson, Section 5-19-28, is arranging to set a string of 6-inch casing to test a sand cored from 3,660-66 feet.

The Arkansas district reported six new operations in addition to the Fox test, one in Columbia County, two in Miller, two in Ouachita and one in Union. Two other wildcats in Lafayette County are active, Douglas Lown's No. 1 Camp, Section 14-14-23, near Bradley in the southern part of the county, drilling at 1,065 feet, and C. V. Lenz's No. 1 Foster, Section 9-15-25, east of the Miller County Field, drilling at 1,750 feet. In the northern part of the state, Conway County, the Southern Union Gas Co. and Donald Trumbo's No. 1 Feldman, Section 6-5n-17w, is running a string of 8¼-inch casing at 2,504 feet. This was the original contract on the well, but the operators have decided to drill to 4,000 feet.

The Miller County Field is assured of another good pumper with several more nearing the pay sand. The Texarkana Oil Corp.'s No. 1 H. E. Beck, Section 34-15-26, is waiting for standard rig to pump at 2,923 feet with 2,500 feet of oil in the hole, and C. E. Murdock's No. 1 E. L. Beck, Section 33-15-26, has set 7-inch casing over a 2-foot sand cored from 2,927-29 feet. Frank Roe's No. 1 Olivet, Section 4-16-26, is coring for the pay at 2,752 feet.

NORTH LOUISIANA

The five completions in North Louisiana consisted of three oil wells in the Zwolle and Converse Fields, one small pumper abandoned in the latter area as a noncommercial well and a wildcat in Lincoln Parish with barren results. The latter, the Triangle Drilling Co.'s No. 1 W. A. Colvin, Section 31-20-3w, was abandoned in salt water in the upper Trinity at 4,306 feet. The top of the upper anhydrites was logged at 3,702 feet and the base at 4,143 feet. The Oolitic lime in the upper Glen Rose failed to carry gas as in the Sugar Creek Field to the west and the sand below was saturated with salt water.

In the Converse Field, G. H. Collins' No. 3 Cranford, Section 20-9-13, is flowing 400 bbls. daily through drill stem from 1,486 feet. When the drill stem is removed and tubing set, this well will make one of the best producers yet drilled in that area. In the same field, the Gerhig Oil Co.'s No. 2 A. J. Burkett, Section 9-9-13, is a 35-bbl. pumper from 2,028 feet. John W. Moffitt's No. 1 Logan Oil Co., Section 3-9-13, failed to make a commercial producer after rigging up to pump and was abandoned at 1,985 feet. This is one of the few dry holes or salt water wells in the Converse Field.

The East Zwolle Field furnished one fair producer, the Pelican Natural Gas Co.'s No. 30 Louisiana Long Leaf Lumber Co., Section 31-8-11, pumping 135 bbls. from 2,247 feet.

Fails to Conact Blossom Sand

The Eastern Texas Production Co.'s No. 1 First National Bank of Gibsland, Section 15-17-7, Bienville Parish, has disappointed its backers by failing to contact the Blossom pay at the expected depth. A drill stem test from 2,699 to 2,734 feet was dry and the crew is coring ahead slightly below the 2,800-foot level. The Producers Oil & Gas Co.'s No. 1 W. H. Werner, Section 7-17-11, northeast of the Sligo gas field, Bossier Parish, tested salt water from 2,846 to 3,211 feet where it was expected to contact a gas sand in the Washita in the upper part of the lower Cretaceous. Arrangements are being made to move in a heavier rig to drill to 4,500 feet which should encounter the gas bearing Oolitic lime in the Glen Rose.

Two wildcats are arranging to test in the northwestern part of Caddo Parish. W. T. Bell and others' No. 1 Bostick, Section 12-22-16, north of the town of Vivian, reports a good show at 2,512 feet and casing will be set to test. R. W. Norton's No. 1-B J. B. French, Section 34-23-16, a deep test for oil below the gas producing horizon in the Rodessa Field, has plugged back to 6,400 feet after testing salt water at 6,717 feet. Two Trinity tests for gas off the proven structure of the Rodessa Field are being watched closely as drilling progresses. Northeast of the field, the Arkansas-Louisiana Pipe Line Co.'s No. 1 Rodessa Oil & Land Co., Section 23-23-16, is drilling at 4,498 feet, and west of production about 900 feet over the Texas-Louisiana line in Cass County, the United Gas Co.'s No. 1 T. J. Walton, John Coleman Survey, has spudded in. The latter company is also drilling its No. 1 Sally Dees at 5,039 feet in Section 28-23-16, within the proven lines of the field.

None of the other wildcats developed anything of interest in the North Louisiana district during the past week but DeSoto Parish is in the lead in activity with nine rigs running in wildcat territory. All of the new locations staked in this district were in the Zwolle and Converse proven areas.

Wildcat Operations in Louisiana-Arkansas

(Rotary operations unless otherwise designated)

North Louisiana

AVOYELLES PARISH

Company, well, farm name, section and block—	Remarks:
Haas & Stokes' No. 1 Lindstrum Land Co., 690 ft. S, 980 ft. E, NW cor. Sec. 34-1n-6e	Set 12-in. 40 ft.

BIENVILLE PARISH

Eastern Texas Oil Co.'s No. 1 First Natl. Bank, 330 ft. N and E, SW cor. NE NE Sec. 15-17-7	Coring 2,800 ft.

BOSSIER PARISH

Bossier O. & G. Co.'s No. 1 Sherrill, 300 ft. S and W, NE cor. Sec. 13-9-12	S.D.; W.O. 2,261 ft.
Force & Hanover's No. 1 Cryer, 330 ft. S and W, NE cor. NW SW Sec. 25-19-12	S.D. 875 ft.
McKinney & Stewart's No. 1 Nattin, 470 ft. W, 620 ft. S, NE cor. Sec. 22-22-14	S.D. 2,865 ft.
Producers O. & G. Co.'s No. 1 Werner, 660 ft. N and W, SE cor. Sec. 7-17-11	S.D. 3,211 ft.

CADDO PARISH

Ark.-La. P. L. Co.'s No. 1 Rodessa Land Co., 1,290 ft. N, 645 ft. W, SE cor. Sec. 23-23-16	Drlg. 4,498 ft.
Ark.-La.-Tex. O. & G. Co.'s No. 1 Simon, 330 ft. N and E, SW cor. Sec. 15-20-15	Arranging to set 6-in. 1,500 ft.
W. T. Bell et al's No. 1 Bostick, 1,320 ft. E, 660 ft. N, SW cor. Sec. 12-22-16	W.O. csg. 2,512 ft.
W. O. Bliss' No. 1 McDade, 330 ft. N and E, SW cor. NW NW Sec. 2-20-15	W.O.S.R. 1,640 ft.
Burkett O. & G. Co.'s No. 1 Lindholm, 400 ft. S and E, NW cor. NE SE Sec. 15-17-14	S.D. 1,046 ft.; repairing rig.
A. D. King, tr.'s No. 1 Roach, 641 ft. E, 375 ft. N, SW cor. SE Sec. 4-14-16	S.D. 2,128 ft.

CALDWELL PARISH

Terrell & Price's No. 1 La. Central Lbr. Co., 300 ft. N, 300 ft. W, SE cor. NW NE Sec. 18-11-3e	Coring 2,355 ft.

CATAHOULA PARISH

T. R. Hincey's No. 1 Milsaps, Sec. 32-9-6e	Rigging up.

CLAIBORNE—SUGAR CREEK

United Gas Public Service Co.'s No. 1, 1,390 ft. N, 2,890 ft. E, SW cor. Sec. 32-20-5	Set 12-in. 509 ft.

DE SOTO PARISH

L. H. Alderson's No. 1 Peek, SE cor. NW NE Sec. 25-11-13	Set 8-in. 1,331 ft.
Berry Oil Co.'s No. 1 Wemple, Sec. 14-12-11	Set 6-in. 2,604 ft.; T.D. 2,655 ft.
R. E. Collins' No. 1 Thigpen, 515 ft. N, 970 ft. E, SW cor. NW NE Sec. 29-15-12	Coring 890 ft.
Dempsey & Manziel's No. 1 Thirpen, 375 ft. S, 330 ft W. NE cor. SW NE Sec. 33-13-13	Coring 1,425 ft.
Gaskill et al's No. 2 Guy, 370 ft. S and W, NE cor. NW SE Sec. 3-11-13	Repair rig 475 ft.
Hirschfield-Bailey's No. 1 Youngblood, Sec. 9-11-14	S.D. 912 ft.
Geo. M. LeGrand's No. 1 Fulmer, 200 ft. N and W, SE cor. NW SW Sec. 1-11-16	Rigging up.
J. S. Tuffree's No. 1 McGill, 460 ft. N, 150 ft. W, SE cor. SW SE Sec. 1-10-13	Drlg. 1,825 ft.

LINCOLN PARISH

Triangle Drlg. Co.'s No. 1 Colvin, 660 ft. E of C Sec. 31-20-3w	S.W. and abd. 4,306 ft.

(Continued on Page 84)

Crude Oil Production

Estimated daily average production of all fields for the week ending May 19 follows:

NORTH LOUISIANA

	(Bbls.)
Caddo light	4,980
Caddo heavy	1,585
Converse	1,635
Cotton Valley	550
DeSoto and Red River	1,525
Elm Grove	380
Haynesville	3,900
Holly	185
Homer	2,635
Pleasant Hill	220
Sarepta-Carterville	750
Urania	2,900
Zwolle	5,080
Total	26,325

SOUTH ARKANSAS

Champagnolle	1,260
El Dorado	2,475
Lisbon	380
Miller County	885
Nevada	900
Smackover light	2,370
Smackover heavy	19,800
Stephens	605
Urbana	1,980
Total	30,655

Best New Wells in Kansas Reported From Reno and Russell Counties; Spurt in New Work

By JAMES McINTYRE

With the exception of a 1,000-bbl. well in Russell County and another 1,000-bbl. well in Reno County, completions in the past week in Kansas were not calculated to excite the industry. There was an increase in new work over the previous week, but the whole field appeared to have felt the absence of many field workers who were in attendance at the petroleum exposition in Tulsa during the week.

Tom Palmer's No. 1 Woelk, SW SW NW Section 22-13-14w, Russell County, was completed after it had tested 1,002 bbls. in 24 hours from pay at 3,277-80 feet.

Sinclair Prairie Oil Co.'s No. 3 Base, C SE SE Section 26-23-4w, Reno County, was completed in pay at 3,329-36 feet and made an initial production of 1,005 bbls.

Kansas Production

Estimated daily production of important pools in Kansas for the week ending May 19 and for the preceding week was as follows:

Pool—	Barrels May 19	Barrels May 12
Hollow	11,250	11,150
Ritz-Canton	14,515	14,500
Voshell	8,250	8,200
Sedgwick County	7,500	7,650
Nikkell	5,680	5,360
Ellsworth County	3,907	3,335
Barton County	1,008	1,237
Rice County	13,524	11,590
Reno County	4,150	4,081
Ellis County	819	616
Kingman County	2,030	2,221
Stafford County	1,050	1,115
Russell County	7,015	6,721
Greenwood County	13,050	12,250
Butler County	16,050	16,900
Other pools	19,917	22,749
Total	128,715	129,675

Rice County

Ramsey and others' No. 3 Community-Smith, CEL NE SE Section 31-19-9w, Chase townsite in Rice County, was dry and abandoned. It found barren Siliceous lime at 3,243-55½ feet.

C. B. Davis and others had material in for No. 2 Christopher, 861 feet from south line and 314 feet from east line, SW SE Section 31-19-9w.

Gypsy Oil Co. has rig up for No. 1 Frank Malone, SE NE NE Section 30-20-9w.

Carl Hipple has a rig up for No. 1 Brown, NE NW NE Section 10-21-6w, Rice County. The Texas Co. has rig up for No. 3 McFarland, SE cor. SW Section 7-20-9w. Ramsey and others' No. 2 Ira, SE NW NW Section 32-19-9w, is a rig.

Empire Oil & Refining Co.'s No. 5, SE NW SW Section 18-20-9w, made 677 bbls. of oil and no water in a potential test from Siliceous lime at 3,329-36½ feet and had cellar dug for No. 7, C NE SW SW Section 18.

Continental Oil Co.'s No. 1, C NW NW SE Section 25-18-8w, had Siliceous lime at 3,132-35 feet with slight saturation, and set 6-inch casing at 3,131 feet. The crew was waiting for cement to set.

Lario Oil & Gas Co.'s No. 1, C SW SW NE Section 7-20-9w, shot Siliceous lime at 3,274-92 feet with a small charge of nitroglycerin and later swabbed 7 bbls. per hour, cutting 3 per cent.

Marion County

Harwood Oil Co.'s No. 2 Cowman, SW NE SE Section 11-17-4, northeastern Marion County, was completed after a potential test had yielded 203 bbls. from pay at 2,340-75 feet.

Bob Youker has made a location for No. 3 Riffle, SE NW SW Section 11-17-4.

Western Petroleum Exploration Co.'s test, No. 1 Andrea, SW cor. Section 30-15-12w, Russell County, was dry and abandoned at 3,387 feet. It had water from 3,374 feet to the bottom.

McPherson County

Gypsy Oil Co. abandoned the location for No. 5 Lovett, SW NW NW Section 24-19-2w, Ritz-Canton Field, McPherson County.

Slick, Pryor & Lockhart's No. 1 Ordineal, SE SW SE Section 21-20-3w, was a hole full of water in Wilcox lime at 3,757-72 feet and was abandoned.

Vernon Oil & Gas Co.'s No. 5 Drumm, SW NW NE Section 35-19-2w, had chat at 2,905 feet with pay at 2,915-50 feet, and the well made 46 bbls. in 24 hours.

Carey and others' No. 4 Holt, NE SW SE Section 13-19-2w, is a 178-bbl. completion in Viola lime at 3,405-38 feet.

Phillips Petroleum Co. has material on the ground for No. 3 Hindmarsh, NE NW SW Section 20-19-1w. Wolf Creek Oil Co. and others made a location for a test in the SW cor. Section 3-19-2w. Shell Petroleum Corp. made a location for No. 4 Giffen, SE cor. NW Section 14-19-2w. Rush and others made a location for No. 2 J. Johnson, NW cor. Section 10-19-2w.

Sedgwick County

Magnolia Petroleum Co.'s No. 2 Vickers, SW NW NW Section 20-27-2, Sedgwick County, is being deepened from 2,760 feet, and had reached a depth of 3,074 feet. Trees and Derby Oil Co. have material in for No. 1, NW SW NE Section 36-26-1e.

Wichita operators evidently have faith in Sedgwick County, Kansas, which has been one of the leading producing counties in the State for several years past. A number of wildcat and semiwildcat tests are under way.

E. B. Shawver's test on the Brookings Dairy farm, SW cor. Section 36-26-1e, had a showing of oil in Kansas City lime at 2,701 feet and was drilling at 2,850 feet. Chat was expected to lie at about 3,080 feet. It is a half mile north of the Robbins Pool, where production comes from chat.

Dr. J. H. Miller is starting a well between Valley Center and Bentley. The location was not learned, but it is southeast of Willis Hartman's No. 1 Jones, in Section 19-25-1w. Derby Oil Co. is getting ready to start a test, No. 1 McMinn, NE Section 36-26-1e. E. B. Shawver is drilling in the NE cor. Section 13-28-2w, a mile southwest of the Lauck and others well on the Jordan farm southwest of Wichita, which caused such a furor a few weeks ago, but which ended disappointingly.

Butler and Greenwood Counties

Ward & McGinnis' No. 12 B. Wiggins, CEL SW NE Section 30-24-11, Greenwood County, was dry and abandoned at 2,031 feet. Same operators' No. 1 Smith, SE SW NE Section 15-24-11, was dry and abandoned at 1,676 feet.

DeGenther has a rig up for No. 1 Marnane, NW cor. Section 29-26-3, Butler County.

Ellsworth County

Gypsy Oil Co. made a location for No. 2 Kozesek, NE SE SE Section 16-16-10w, in Ellsworth County.

Russell County

The Texas Co. has location staked for No. 3 Jacobs, NW cor. SW Section 31-12-15w.

Wildcat Operations in Kansas

Week Ending May 19
(Descriptions are East unless marked otherwise)

BARTON COUNTY

Company, farm and location—
National Ref. Co.'s No. 1 Ingersoll, C NW NE Sec. 2-19-13w ..... Drlg. 845 ft.
Skelton et al's No. 1 Ott, C SE SE Sec. 14-19-14w ..... P.B. to 3,255 ft.; acidized; pumping wtr.
Walter Shearon et al's No. 1 Kempler, SE NE NE Sec. 31-18-11w ..... Drlg. 250 ft.

BUTLER COUNTY

DeGenther et al's No. 1 Marnane, NW cor. Sec. 29-26-3.. Cellar.
L. C. Hay et al's No. 1-A Bolin, SE SW SE Sec. 36-26-6.. K.C. lime 2,159-62 ft.; est. 15 bbls.
Tom Palmer and Darby Pet. Co.'s No. 1 Harder, NW NE Sec. 27-24e3 ..... T.D. 2,967 ft.
Van Meter et al's No. 1 Moore, NE cor. Sec. 5-25-4 ..... Rig.

CLAY COUNTY

Seidel Bros.' No. 1 Youkers, C S½ SE NW Sec. 21-9-4.. Machine.

DICKINSON COUNTY

Dutch Oil Co.'s No. 1 Phillips, C NE NW Sec. 15-15-1e.. T.D. 935 ft.; running 12-in. csg.

ELLIS COUNTY

Alma Pet. Co. et al's No. 1 Rhodes estate, SW SW Sec. 14-11-18w ..... Drlg. 3,360 ft.

ELK COUNTY

Diller O. & G. Co.'s No. 1-A Keys, C E½ SE NE Sec. 26-31-10 ..... Machine.
Lerke et al's No. 1 Mason, C NE NE Sec. 5-31-10 ..... U.R. csg. 900 ft.
B. Taylor et al's No. 1 Wilson, SE NE SE Sec. 5-28-10 .. Machine.

FINNEY COUNTY

National Ref. Co. et al's No. 1 Smith, C SE SW Sec. 2-23-33w ..... T.D. 1,800 ft.; S.D. for fuel.

GREENWOOD COUNTY

Ackman et al's No. 1-A Gilroy, SE SW NW Sec. 34-25-12. Drlg. 610 ft.

HARPER COUNTY

R. G. Berry's No. 1 Anthony, C SW SW Sec. 17-31-9w .. Surface pipe set.

HARVEY COUNTY

Foraker et al's No. 1 Hiett, SE SW NE Sec. 34-24-4w.... Cellar.
Wenzel et al's No. 1 Schrag, NW SE Sec. 24-22-3w ..... Rig.
Lassen, Bruce et al's No. 1 Joseph, NW NE Sec. 13-24-2 ..... Spudded and S.D.

KINGMAN COUNTY

Kessler et al's No. 1 Bollinger, SW NW SW Sec. 12-28-5w ..... Rigging up.

LYONS COUNTY

Arkman & Baker's No. 1-A Hind, NE NW Sec. 30-21-12.. Drlg. 400 ft.

McPHERSON COUNTY

Tom Palmer's No. 1 Nordling, SE SW Sec. 19-18-2w .... Drlg. 2,395 ft.
Slick, Pryor & Lockhart's No. 1 Ordineal, SE SW SE Sec. 21-20-3w ..... H.F.W. 3,757-72 ft.; abnd.
Continental Oil Co. et al's No. 1 Graber, NE NW Sec. 32-21-1w ..... Drlg. 2,550 ft.
Jim Madison's No. 1 Boesker, SE NW Sec. 29-20-1w ..... Spudded.
Marileen Oil and Goering Bros.' No. 1 Decker, NW cor. SE Sec. 20-18-1w ..... Location.

OSAGE COUNTY

Jim Edwards' No. 1 Detrich, C NW SE Sec. 21-14-15 .... Machine.

PHILLIPS COUNTY

Ashby et al's No. 1 Close, C SE Sec. 24-5-18w ..... Drlg. 3,285 ft.

RENO COUNTY

Atlantic Oil Prod. Co.'s No. 1 Phillips, C E½ NW NE Sec. 22-22-6w ..... Drlg. 1,582 ft.
L. H. Wentz' No. 1 Metcalf, SE NE SW Sec. 3-24-7w .... Set 15-in. pipe 224 ft.
Sinclair Prairie Oil Co.'s No. 1 Shepard, SE cor. NW Sec. 22-26-9w ..... Moving in.

RICE COUNTY

Aylward & Trees' No. 1 Belder, SW SE NE Sec. 27-20-7w ..... Drlg. 1,100 ft.
Continental, Empire and Shell's No. 1 Bennett, NW SE Sec. 25-18-8w ..... Set 6-in. csg. 3,131 ft.
Deitrick et al's No. 1 Fitzpatrick, C NE NE Sec. 30-21-8w ..... S.D. 1,505 ft.
Elwell et al's No. 1 Springer, NE NW Sec. 35-18-10w... S.D. 2,440 ft.
Langston et al's No. 1 Markle, NE SW Sec. 1-20-9w .... T.D. 1,185 ft.; S.D. for repairs.
Reserve Dev. Co.'s No. 1 Heinz, NE SW SE Sec. 8-18-10w. Drlg. 2,235 ft.

ROOKS COUNTY

Seeley et al's No. 1 Doughty, C SW SW Sec. 15-8-19w.. Spudded and S.D.
Phillips Pet. Co.'s No. 1 Dopita, C SW SW Sec. 31-8-17w.. P.B. to 3,217 ft. and acidized; 14 bbls. oil, 82 bbls. wtr. in 12 hrs.

RUSH COUNTY

Central States L. & P. Co.'s No. 1 Basgall, SE cor. Sec. 10-17-16w ..... Location.

RUSSELL COUNTY

C. L. Price et al's No. 1 Bender-B, NW SE Sec. 10-16-13w ..... Material.
Western Exploration Co.'s No. 1 Andrea, SW cor. Sec. 30-15-13w ..... Siliceous lime 3,374-90 ft.; S.O.

SEDGWICK COUNTY

D. Lauck's No. 1 Gillespie, NE SE SW Sec. 6-28-1w.... Fishing 405 ft.
Sovereign Oil Co.'s No. 1 Nichols, C NW SE Sec. 20-25-1w ..... S.D. 360 ft.

STAFFORD COUNTY

Stanolind O. & G. Co.'s No. 1 Denker, 693 ft. from N line, 330 ft. from W line, SW Sec. 10-22-12w ..... Rig.

SUMNER COUNTY

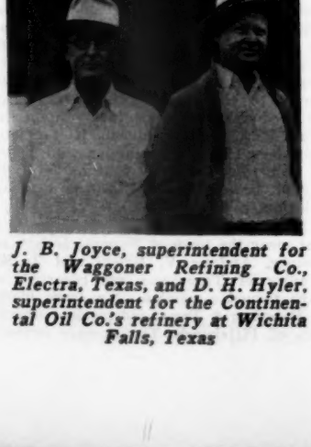
Morgan & Flynn's No. 1 Mercer, NW NE NW Sec. 36-33-1w ..... Spudding.

TREGO COUNTY

Central Commercial's No. 2 King, C SE SW NE ..... Drlg. out cave; T.D. 4,015 ft.

WOODSON COUNTY

Sheedy et al's No. 1 Street, NW SE NW Sec. 25-24-14... Location.



J. B. Joyce, superintendent for the Waggoner Refining Co., Electra, Texas, and D. H. Hyler, superintendent for the Continental Oil Co.'s refinery at Wichita Falls, Texas

Revival of Field Work in Southern Oklahoma; Oklahoma City Potentials Off 51 Per Cent

By JAMES McINTYRE

The International Petroleum Exposition in Tulsa last week attracted many thousands of field men from all parts of the country, but most of them came from the Mid-Continent states, and their absence from the scene of their work and operations had a very pronounced effect on completed work and new operations, especially the latter. In the Oklahoma Field very few first reports on locations and rigs were received from the field and a slowing down of all kinds of field work was to be seen in the reports from the various zones of operation. Average daily production for the week ending Saturday was 528,565 bbls. as against 543,650 bbls. per day in the previous week.

Potentials in the Oklahoma City Field have dropped 51 per cent in the six months and numerous methods of coaxing production from the wells, and lengthening the life of the field, are being subjected to experiment. Tests made on 454 wells in the Wilcox sand in the Oklahoma City Field show a potential of 1,704,396 bbls. in 24 hours, a 41 per cent decline in six months. Thirteen oil wells have been added to the Wilcox sand zone since the last previous potential was taken and these wells are rated potentially at 65,089 bbls. in one day. The potentials are based on four-hour tests. In the Simpson zone 340 wells are rated potentially at 131,206 bbls., a decline of 61.7 per cent from the potential six months ago. Five new wells have been completed since then, rated at 2,304 bbls. A total of 162 Simpson zone wells are showing water.

Oklahoma Production

Estimated daily average production in the week ending May 19 and the preceding week was as follows:

Pool—	Barrels May 19	Barrels May 12
Allen	8,260	8,005
Blackwell district	5,050	5,000
Bristow-Slick	10,250	10,250
Cushing-Shamrock	13,750	13,750
Chandler district	7,000	7,250
Davenport	750	750
Healdton	9,300	9,300
Hewitt	5,000	4,550
Burbank	9,100	9,100
South Burbank	3,500	4,160
Balance of Osage	24,500	24,500
Lucien	9,100	10,430
Crescent	5,360	4,215
Marshall-Lovell	1,050	1,050
Bowlegs	10,040	8,215
Carr City	6,520	5,200
Earlsboro	9,680	7,900
East Earlsboro	12,635	11,015
South Earlsboro	1,210	1,040
Little River	16,505	13,190
East Little River	605	510
Seminole	10,140	8,525
East Seminole	1,015	665
Searight	3,085	2,510
Maud	1,275	1,265
Mission	4,140	4,005
St. Louis-Pearson	22,750	20,150
Cromwell	4,650	4,750
Papoose	1,375	1,400
Oklahoma City	198,830	232,525
Asher-West Asher	1,920	1,850
Tatums	7,135	7,340
Sholem-Alechem	4,550	4,550
Duncan	4,550	4,550
Tonkawa-Garber-Thomas	6,800	6,800
Fish	2,795	2,715
Konawa	2,355	2,225
Gray	2,575	2,660
Graham	3,550	3,550
Holdenville	3,365	3,365
Wewoka	4,500	4,600
Yale-Jennings	5,150	5,150
Other fields	62,900	61,830
Total	528,565	546,350

The busiest part of the State in the past week was the south end. Stephens County's first reports exceeded those of any other county.

A new well in the Sasakwa townsite was given a 48-hour potential test and produced 5,481 bbls. in that period. It is jointly owned by the Stanolind, Amerada and Indian Territory companies.

Northwest of Perry in Noble County the Texas Co.'s wildcat, No. 1 Voss, SW NE SE Section 28-22-2w, cored a saturated Layton sand at 5,752-67 feet. The top of the Layton was 75 feet higher than in a dry hole drilled about a mile north some years ago.

Tom Bennett, Inc., has completed a deal for a test in C SE SE SW Section 27-12-2, Lincoln County, northwest of Newalla. A number of the large companies have contributed cash and acreage to have this test drilled.

A community test is to be started in NE NW Section 17-6-3, Pottawatomie County, in which the Shell, Mid-Continent, Texas, Amerada, Stanolind, Gypsy, Sinclair Prairie and Magnolia are interested. It will be drilled on a block which includes the W half and the W half of E half of Section 8; E half E half of Section 7, E half NE and NE SE of Section 18 and all the Section 17 except the NE NE.

Osage County

Sinclair Prairie Oil Co. and Indian Territory Illuminating Oil Co.'s No. 1, NE cor. SE Section 9-25-6, Osage County, flowed 805 bbls. in 24 hours from Burbank sand at 2,800-53 feet.

Carter Oil Co. and Norbla Oil Co.'s No. 6 Presbury, SW SE NE Section 10-25-6, flowed 704 bbls. in 12 hours, with gas at the rate of 8,000,000 feet, from Burbank sand at 2,694-2,780 feet, but completion was delayed by a fishing job for tools.

Champlin Refining Co.'s No. 1 Terrell, NW cor. SE Section 15-25-6, had sand at 2,746-85 feet, total depth, and still in sand. The well flowed and swabbed 114 bbls. the first 24 hours. It was given a 30-quart shot and made 279 bbls. in 24 hours, flowing and swabbing.

A. H. Kasishke's No. 5 Carroll, NW cor. SW Section 15-25-6, had Burbank sand at 2,747 feet and drilled to 2,766 feet, still in sand. The well swabbed 25 bbls. and will be shot.

Champlin Refining Co.'s No. 3, SE NE NW Section 16-24-7, found Bartlesville sand at 2,608 feet, but oil at 2,657-70 feet. It was shot with 80 quarts and swabbed 100 bbls. in 12 hours.

Lewis Production Co. and Continental Oil Co. completed No. 1-A, a twin shallow test, NE cor. SW Section 16-24-7. It went to water and is being used as a salt water disposal well.

Continental Oil Co. and Gypsy Oil Co.'s No. 4, NE cor. Section 21-24-7, flowed 120 bbls. the first 24 hours from Bartlesville sand at 2,536-2,634 feet, but will be shot.

A. Beck's No. 1, SW cor. Section 13-24-8, was being cleaned out. Six-inch pipe was set with packer and the well flowed 25 bbls. of oil and 25 bbls. of water from Bartlesville sand at 2,172-2,209 feet, still in sand. When it was shot recently it made 100 bbls. in the first 90 minutes.

E. Schoenfeldt completed No. 1-A, CSL SE NE NW Section 22-24-8. It is a 15-bbl. pumper at 2,343-66 feet.

W. C. Norris' No. 1, NW SE Section 29-21-11, which was a 75-bbl. well in Burgess sand at 1,940-43 feet, was drilled 9 feet deeper and flowed 320 bbls. in 24 hours. Later it swabbed 75 bbls. It was completed.

Carter Oil Co. and Peters Petroleum Corp. made a location for No. 1 M. J. Cook, SE NE Section 9-25-6. New work was given a setback by the rig builders' strike. A number of locations previously made would have been occupied by rigs had it not been for the labor trouble.

Kay County

The Texas Co. has a rig up for No. 2 Smith, NE SW NW Section 19-25-1w, Kay County.

Noble County

Shell Petroleum Corp.'s No. 1 Kolb, C NW SW Section 28-20-2w, had second Wilcox sand at 5,070-95 feet. It was shot with 30 quarts and flowed 1,390 bbls. in 24 hours. It had flowed at the rate of 75 bbls. an hour from first Wilcox sand at 4,950-5,012 feet. The well was shut down for a potential test.

Twin State Oil Co. has made a location for No. 1 Pfeiffer, CEL NW NW SW Section 33-20-2w.

Pawnee County

O. H. P. Thomas was drilling at 250 feet in No. 1, Lot 20, Block 29, SE NE NE SE Section 25-20-9, Keystone, Pawnee County.

Payne County

Magnolia Petroleum Co. completed No. 2 Chevalier, NW SE Section 27-19-4, Yale Field, an old well drilled deeper. It was drilled to 4,312 feet and was in lime when drilling was stopped and the hole plugged back to 3,828 feet and acidized. It pumped 8 bbls. of oil and 16 bbls. of water. The log showed Bartlesville at 3,437-80 feet, with about 1,500,000 feet of gas; chat and shale at 3,792 feet, Sylvan at 3,800 feet, Viola at 3,815 feet, first Wilcox sand at 3,897-3,932 feet, second Wilcox at 3,940-55 feet, top of the Arbuckle at 4,090 feet and total depth 4,312 feet.

Creek County

Kerr & Bisett's No. 2-A Sanger, NW SE SE Section 9-19-10, Creek County, was dry and abandoned in sand at 880-90 feet. Same operators were rigged up to deepen No. 1-A Sanger, NE NW SE SE Section 9-19-10. Regal Oil Co. and Swift were drilling at 300 feet in No. 1-A Hull, a twin, SE SW SE Section 4-19-9, and Johnson Oil & Refining Co. made a location for No. 3 Henaha, NE SW SE Section 11-19-9.

Suppes & Thomas' No. 1 Brown, NE SW NE Section 16-16-8, was given a shot in Red Fork sand at 2,728-62 feet and it swabbed 17½ bbls. the first day.

L. B. Jackson's No. 3, C E half NW SE Section 27-18-8, Olive Pool, had Layton sand at 1,314-32 feet and shot it. The well pumped 75 bbls. in 24 hours and was completed.

W. B. Pine's No. 2 fee, NW NE SE Section 27-18-8, was a hole full of water from Layton sand at 1,306-35 feet, and was shut down.

Doke & Hughes' No. 6 Rentie, SE cor. Section 34-18-8, was shot with 120 quarts in sand at 1,299-1,305 feet and the hole filled 400 feet with oil.

Bay State Oil Co.'s No. 1 Lasley, NE

Wildcat Operations in Oklahoma

Week Ending May 17

Northern Oklahoma

ATOKA COUNTY

Company, farm and location— Remarks:

Malernee et al's No. 1 Greenville, N. B., NW SW Sec. 35-2s-13e ..... Drlg. 1,700 ft.

ALFALFA COUNTY

Acre et al's No. 1 Acre, C SW NE Sec. 14-24-11w ..... T.D. 6,480 ft.; making a small flow of oil once a week.

BECKHAM COUNTY

West Oak Gas Co. et al's No. 1 Powell, NW SW Sec. 11-9-25w ..... 18,000,000 ft. gas at 3,446-3,549 ft.

CADDO COUNTY

Denver Prod. & Ref. Co.'s No. 1 Nee, NW SW SW Sec. 24-10-10w ..... T.D. 9,982 ft.; pulling tubing to deepen.

CLEVELAND COUNTY

Phillips Pet. Co. et al's No. 1 Baker, C SE NW Sec. 11-9-2w ..... Drlg. 1,415 ft.

COAL COUNTY

Moore & Deaner's No. 1 Edward, NW NE SE Sec. 27-3-8 ..... Drlg. 4,725 ft.

Emanuel, Rudman & Hatcher's No. 1 Moyer, C SW SE NW Sec. 7-3-8 ..... Drlg. 1,160 ft.

Westheimer & Daube's No. 1 Lowman, C NE SE Sec. 18-3-8 ..... S.D. 4,862 ft.

GARFIELD COUNTY

Ross Cummings et al's No. 1 Gage, SE NW Sec. 27-22-3w ..... Spudded.

GARVIN COUNTY

Denver P. & R.'s No. 1 Newburn, C SE SW Sec. 22-5-1e ..... Drlg. 3,270 ft.

HUGHES COUNTY

Dickison et al's No. 1 Webster, NW NE Sec. 22-10-10 ..... Rig on ground.

J. B. Hill's No. 1-A Perkins, C W½ SW SW Sec. 7-5-9 ..... Drlg. 1,060 ft.

Birk-Kan's No. 1 Gardner, NE NW Sec. 22-6-9 ..... S.D. 3,860 ft.

Olympic Oil Co.'s No. 1-A McClassen, SE NW NW Sec. 12-9-8 ..... Rig up.

Olympic Oil Co.'s No. 1 McClassen, SE NW NW Sec. 12-9-8 ..... T.D. 600 ft.; lost tools; S.D

Scruggs et al's No. 1 Black, NE Sec. 13-9-10 ..... Wilcox sand 3,922-29 ft.; S.W.

KAY COUNTY

Argo O. & G. Co.'s No. 1 Freese, SW NE NW Sec. 30-25-1w ..... Drlg. 4,253 ft.

KINGFISHER COUNTY

Jadeka Dev. Co.'s No. 1 Frakes, C SW NE SW Sec. 16-15-6w ..... Drlg. 3,068 ft.

LATIMER COUNTY

Choctaw Oil & Gas Co.'s No. 1 Fleming (gas test), NE SE SE Sec. 9-6-22 ..... Comp. 500,000 ft. gas at 1,465-1,727 ft.

LEFLORE COUNTY

East Okla. Oil & Gas Co.'s No. 1 Metcalf, SW cor. Sec. 2-4-26 ..... Drlg. 1,230 ft.

LINCOLN COUNTY

Anderson & Kerr's No. 1 Huckabee, SW cor. Sec. 9-15-2 ..... Dry and abd. 5,381 ft.

Harvey Newman Oil Co.'s No. 1 Rueb, C NW NE Sec. 23-15-5 ..... Cellar

Mid-Continent Oil Co.'s No. 1 Bolby, NE SE Sec. 27-12-2 ..... Rig.

H. W. Pierce's No. 1 McMurtry, NE cor. Sec. 6-14-5 ..... Dry and abd. 4,740 ft.

The Texas Co.'s No. 1 Gessmann, SE NE Sec. 33-14-4 ..... Drlg. 2,254 ft.

LOGAN COUNTY

W. N. Anthony's No. 1 Fruin, SE SW Sec. 4-16-1 ..... Rigging up.

(Continued on Page 61)

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Tulsa, Oklahoma

cor. NW Section 3-17-8, was shot in the Layton sand at 1,341-81 feet and swabbed and flowed 125 bbls. in 24 hours.

Magnolia Petroleum Co.'s No. 1 Street, NE cor. Section 3-17-8, was completed. It made a 5-bbl. well in Layton sand. This was an old well drilled deeper to the Burgess sand, which was dry at 3,134-74 feet.

Same company's No. 4 Street, SW SE NE Section 3-17-8, is a 45-bbl. Layton sand well in sand at 1,365-1,403 feet. which was shot.

Doke & Hughes' No. 2 Watson, NW NE NW Section 10-17-8, started at 35 bbls. from Layton sand at 1,309-38 feet, after a shot.

Carter Oil Co. was preparing to abandon No. 8 Durant, SW SE NE NE Section 15-16-9, in the Bristow Field. It was an old well deepened from 3,023 feet to the Wilcox sand at 3,522-51 feet. The hole filled with water.

Stanolind Oil & Gas Co., Amerada Petroleum Corp. and others' No. 2 Starr, a community test, C NW SE NW Section 18-15-8, is a 150-bbl. completion in Wilcox sand 3,818-42 feet. It was given one 10-quart shot at 3,818-27 feet, after which it flowed 171 bbls. in 24 hours. Then it was deepened to 3,848 feet where it drilled into water, after which it was plugged back to 3,842 feet.

Bryan Petroleum Co. was drilling at 314 feet in No. 3 Wilson, NW SE NE Section 21-15-8. Doke & Hughes had rig on the ground for No. 3 Watson, NE NW NW Section 10-17-8.

Lincoln County

Anderson & Kerr's No. 1 Huckabee, SW cor. Section 9-15-2, Lincoln County, was dry and abandoned at 5,381 feet. It had water from the second Wilcox sand at 5,349-81 feet with no oil showing. The test penetrated Bartlesville, Mississippi lime, Hunton lime, Sylvan shale, Viola lime and both Wilcox sands without finding oil or gas in commercial quantity. There was a showing in the Bartlesville at 4,670-86 feet.

Another Lincoln County wildcat failure was H. W. Pierce's No. 1 McMurtry, NE cor. Section 6-14-5, which was a hole full of water in the second Wilcox sand at 4,735-40 feet and was abandoned. In this well Prue, Skinner, Brown lime, Mayes, Woodford, Hunton, Sylvan, Viola, Simpson dense, dolomite and Wilcox sand were drilled through.

Okmulgee and Muskogee

Mack Drilling Co.'s No. 8 Richard, CEL SW NW Section 34-16-15, Haskell district, Muskogee County, an old well, was deepened to the Wilcox sand at 1,669-75 feet. The hole filled with water and was abandoned.

Carr Peterson made a location for No. 12 Ware, CEL SW SW Section 9-15-14, Okmulgee County.

Bryan Petroleum Co. have an estimated 40-bbl. well in sand at 1,750-74 feet in No. 1-A Roberts, SE NW SW Section 29-15-14.

Gled Oil Co.'s No. 18 Doyle, SW cor. NW Section 28-13-14, was a hole full of water from Wilcox sand at 2,563-68 feet and was abandoned.

Same company spudded No. 2-A Manuel, SW NW SE Section 22-13-14.

Moffett & Stekoll were drilling at 1,500 feet in No. 3 Hawkins, NW SW SE Section 6-11-12, and had rig and tools in to start No. 7, CWL NW SE Section 6-11-12.

Logan County

Eason Oil Co.'s No. 1 Katscher No. 2, C NW SW Section 34-17-4w, in the Crescent Pool, Logan County, got the top of the second Wilcox sand at 6,370 feet and a show of water at 6,372 feet. The crew was plugging back. This test flowed 1,131 bbls. in 24 hours from first Wilcox at 6,221-70 feet.

Oklahoma County

Harrell & Davis completed No. 1 Riverside Park, 290 feet from south line and 140 feet from east line, SW Section 34-12-3w. It flowed 771 bbls. of oil in four hours with gas at the rate of 3,500,000 feet from Wilcox sand at 6,353-6,468 feet.

Beverly Hills Oil & Gas Co.'s No. 1 Classen, NE SE SE SW Section 22-11-3w, was completed in Wilcox sand at 6,534-77 feet. It was shot with 50 quarts and flowed 669 bbls. in a four-hour potential test with gas at the rate of 4,200,000 feet per day.

Larkin & Warr completed No. 1 Beaucamp, 600 feet from the south line and 175 feet from the west line, SE Section 22-11-3w. It flowed 1,297 bbls. in four hours with gas at the rate of 16,000,000 feet per day after a shot in Wilcox sand at 6,505-86 feet. Then on a potential test it flowed 1,042 bbls. of oil and the same volume of gas as before.

No new work was started in the field in the course of the week.

Okfuskee County

H. Stekoll's No. 3-A Hilderbrandt, SW SE SE Section 16-11-11, is a 12-bbl. completion at 2,630-80 feet.

Merva Oil Co.'s No. 1-A Johnston, SW NW NE Section 10-10-8, is a 30-bbl. pumper at 1,612-50 feet.

Greater Seminole District

Indian Territory Illuminating Oil Co.'s No. 2 Goodin, SE NE NE Section 23-9-6, Seminole Pool, plugged back to 4,126 feet, in Hunton lime pumped 528 bbls. of oil and 110 bbls. of water in a 48-hour test.

Scruggs and others' wildcat test in Hughes County, No. 1 Black, NE cor. Section 13-9-10, found first Wilcox sand at 3,915-18 feet and dolomite at 3,918-22 feet and second Wilcox sand at 3,922-29 feet, but only salt water. The test is shut down for orders.

W. E. Witt and others have abandoned the location for No. 1 Atwater-Fundis, NE NW NE Section 33-8-3, Pottawatomie County, after having dug cellar.

Elbar Oil Co. completed No. 2 Wyatt, SW NW NW Section 10-7-4, South St. Louis area, in Hunton lime at 3,660-3,750 feet. It was acidized and flowed 481 bbls. in 24 hours.

Seminole Supply Co.'s No. 1 Douglas, SW NW NW Section 10-7-4, was acidized in Hunton lime at 3,649-76 feet, and flowed an estimated 300 bbls. in 24 hours. It will be deepened.

Vivian Oil Co. completed No. 1 Atchley, NE NW NE Section 1-6-4. It was re-treated in dolomite at 4,180-4,215 feet and swabbed 397 bbls. of oil and 325 bbls. of water in 24 hours.

Stanolind Oil & Gas Co., Amerada Petroleum Corp. and Indian Territory Illuminating Oil Co.'s No. 2 Palmer, SW NW NW Section 36-6-7, Sasakwa townsite, Seminole County, was completed in Wilcox sand at 4,056-59 feet, total depth. It flowed 5,481 bbls. in 48 hours.

Jones and others have rig up for No. 1 Brandenburg, SW cor. SE Section 3-7-4, Pottawatomie County. Earle Halliburton made a location for No. 2 Pierson, SE cor. NE Section 9-7-4, and was drilling at 1,985 feet in No. 2 Thomas, NW NE NE Section 9-7-4. Limestone Oil & Gas Co. was rigging up No. 13 Walker, CNL SE SE NE Section 15-7-8. Stanolind Oil & Gas Co. has cellar and pits dug for No. 2 Harbert, SE NE NE Section 35-6-7.

McClain and Garvin Counties

Carter Oil Co.'s test in Garvin County, No. 1 Hanner, SW NE SW Section 24-5-1w, McClain County, had the top of Woodford shale at 5,923 feet; Hunton at 6,030 feet, and was drilling at 6,180 feet, in hard lime. It had had no showings of oil or gas.

Denver Producing & Refining Co.'s No. 1 Newburn, C SE SW Section 22-5-1e, Garvin County, was drilling at 3,270 feet.

Pontotoc County

In the Beebe district, Pontotoc County, Mid-Continent Petroleum Corp. was moving in rotary to start No. 1 Milligan, SE NE NE Section 25-5-4, and had cellar dug for No. 2 Milligan, SW NE NE Section 25. Root Refining Co. had rig up for No. 1 Summers, SW cor. SE Section 26-5-4, and Moore & Deaner had rig up for No. 4 Gray, NW SE NE Section 25-5-4.

Concord Oil Co.'s No. 1 Flatt, NE cor.

SE Section 36-5-4, which had Hunton lime at 2,200 feet flowed 205 bbls. in 24 hours in a test in the past week in review. It flowed 450 bbls. when it hit the top of the Hunton late in April.

Oklahoma Oil Corp. completed its No. 1-A Cravens, SE cor. SW Section 24-5-5, Beebe Pool. It was drilled to a total depth of 2,617 feet, in Sylvan shale. This well was previously reported as Harris & Hayes.

Mason and others' No. 1 Layne, SW NW NW Section 30-5-5, had Hunton lime at 2,285 feet and Sylvan at 2,322 feet. It flowed and swabbed 135 bbls. in 24 hours and will be acidized.

Sunray Oil Co. completed a 1,000,000-foot gasser in No. 3 Cully, SW NE Section 18-5-8, an old well drilled deeper. H. & M. Drilling Co. completed No. 4 Busby, C E half SW SE Section 20-5-8, in the Allen district, a 10-bbl. pumper at 852-73 feet.

Jarrett Petroleum Co. has made a location for a wildcat test, No. 1 Johnson, SE cor. NW Section 28-4-4.

Morris and others have abandoned No. 1-B Barnard, SW cor. NE Section 8-4-7, which was a hole full of water from sand at 1,070-71 feet.

Magnolia Petroleum Co.'s deep test in the John Fitts area, No. 1 Norris, NW SE SE Section 18-2-7, was at a total depth of 4,282 feet, with the drill pipe stuck. This test had Wapanucka lime at 2,645 feet and Mayes at 4,195 feet.

Blackstock and others' No. 1 Lewis, NE cor. Section 19-2-7, had Simpson dense at 4,470 feet and drilled to 4,545 feet. Two-inch tubing was run and the well flowed 6 bbls. in 14 hours. The owners were preparing to acidize. This test swabbed 30 bbls. in 24 hours from Hunton lime at 3,975-4,255 feet.

Crosbie & Moran's No. 1 Hardin, SW cor. NE Section 30-2-7, in which a 60,000,000-foot gas production was mudded off and 7-inch pipe cemented at 1,762 feet, had an oil sand at 1,806-20 feet and flowed 80 bbls. through a three-quarter inch choke against a 450-pound back pressure.

On the Coal County side of the John Fitts area the chances of finding oil were not improved. Moore & Deaner's No. 1 Edwards, NW NE SE Section 27-2-8, was drilling in Caney shale at 4,725 feet. Westheimer & Daube, in C NE SE Section 18-2-9, was still shut down at 4,862 feet.

In Southern Counties

J. B. Woolsey abandoned No. 1 Shaw, SE cor. NW Section 20-2-8w, Stephens County, at 2,602 feet. It was dry all the way.

Lish & McCall were rigging up to start No. 1 Busby, SE cor. Section 18-7s-5w, Jefferson County.

R. A. Godfrey has machine in to start No. 3 Burge, NE SW SE SE Section 25-7s-5e, Marshall County.

George Pace and others made a location for No. 1 M. Jack, NE NW NW Section 10-4s-4w, Stephens County. The Merco Oil & Gas Co. was drilling at 525 feet in No. 1 Trout, NW cor. SW Section 1-2s-8w. Raisen Brothers were drilling at 110 feet in No. 9 Brown, NW SW NE SE Section 2-2s-5w. L. Sikes and others had rig up for No. 4 Blake, SW NE NE SW Section 16-1s-8w, and made a location for No. 3 Mulkey, C SW NE NE Section 16-1s-8w. Mudge Oil Co. has location made for No. 33 (twin), 180 feet south and 1,070 feet east of NW cor. Section 26-1s-5w.

(Continued on Page 81)

Wildcat Operations in Oklahoma

(Continued from Page 59)

McCLAIN COUNTY

Carter Oil Co. et al's No. 1 Hanner, SW NE NW Sec. 24-5-1w ..... Drlg. 6,180 ft.

NOBLE COUNTY

Continental Oil Co. et al's No. 1 Bennett, SE NW Sec. 19-20-1w ..... Drlg. 3,522 ft.
Texas Co. et al's No. 1 Voss, C NE SE Sec. 28-22-2w..... Drlg. 3,420 ft.

OKLAHOMA COUNTY

Gypsy Oil Co. et al's No. 1 Harris, C SW NE Sec. 27-13-4w ..... Drlg. 4,745 ft.
Springrose Drlg. Co.'s No. 1 Edwards, C SE Sec. 19-11-1 ..... T.D. 6,285 ft.; bailing.

OSAGE COUNTY

Norbla Oil & Gas Co.'s No. 1, NW SE Sec. 21-24-7 ..... Cellar.
Peters Pet. Co. and Norbla Oil Co.'s No. 1, SW cor. Sec. 15-25-5 ..... Drlg. 1,205 ft.
Empire O. & R. Co.'s No. 1, SE NE Sec. 3-25-3 ..... Drlg. 2,114 ft.

PAWNEE COUNTY

Geo. Thomas' No. 1 School Land, SW cor. Sec. 13-20-5.. Set 8-in. csg. 1,805 ft.; C.O.

PITTSBURG COUNTY

Arkhoma's No. 1 Cummings, NW NE SE Sec. 6-4-12.. Fishing 515 ft.
Exchange Drlg. Co.'s No. 1 Chunn, SE NW Sec. 29-4-14.. Set surface pipe.
W. E. Halley's No. 1 Drew, NW SW Sec. 21-3-14 ..... S.D. 190 ft.
Mid-Western Oil & Gas Co.'s No. 1 Shelton, CSL SE NW Sec. 7-7-13 ..... Drlg. 2,306 ft.
Moffett & Hall's No. 1 Jones, C NE NW Sec. 14-8-14 .... Lost tools; T.D. 3,200 ft.; S.D.
C. L. Carlock's No. 1 Chunn, SE NW Sec. 29-4-14 ..... Rigging up.

PONTOTOC COUNTY

E. M. Blanchard's No. 1 Crabtree, NE SE NE Sec. 27-2-6.. S.D. 2,920 ft.
Boyle et al's No. 1 Newbern, SW NE Sec. 31-5-4 ..... Drlg. 575 ft.
Dandridge et al's No. 1 Stafford, NW cor. Sec. 5-1-6e.. Drlg. 623 ft.
Riddle et al's No. 1 Barnes, SE NW SE Sec. 21-5-4 ..... Set 12-in. pipe at 93 ft.

POTTAWATOMIE COUNTY

W. E. Witt et al's No. 1 Atwater-Fundis, NE NW NE Sec. 33-8-3 ..... Abd. location.

SEMINOLE COUNTY

Harman Oil Co.'s No. 1 Bowlegs, SE NE SW Sec. 1-7-7 ..... T.D. 1,655 ft.; U.R. 5-in. csg.
Flemiee et al's No. 1 Bowlegs, SE NE SW Sec. 1-7-7.... S.D. 1,260 ft.
Tate & Starbuck's No. 1 Heard, SE NW Sec. 9-6-7..... Drlg. 620 ft.

Southern Oklahoma

ATOKA COUNTY

J. D. Boukan's No. 1 Howard, NW SW NW Sec. 20-2s-10e. Drlg. 1,135 ft.
Brookshire et al's No. 1 Rowland, NW NE NE Sec. 18-2s-10e ..... T.D. 3,499 ft.; repair. rig; to D.D.

CARTER COUNTY

Hudson & Poland's No. 1 Sullivan, NE SE Sec. 5-5s-1w.. Tools in.

COMANCHE COUNTY

Helden & Taylor's No. 1 Crotcher, SW NE Sec. 11-1n-12w. O.W.D.D.; drlg. 1,195 ft.
Miller & Goodnight Drlg. Co.'s No. 1 Welderman, NW SE SE NW Sec. 34-2n-12w ..... Drlg. 300 ft.
F. F. Stevens' No. 1 Green, SE SW Sec. 11-1n-12w.. .. Drlg. 805 ft.
Helden & Taylor's No. 1-A Crutcher, C NE Sec. 11-1n-12w ..... Drlg. 440 ft.

COTTON COUNTY

Ben Russell's No. 1 Zumbuemn, NE cor. SW Sec. 21-4s-12w ..... Moving in.

GARVIN COUNTY

National Prod. Co.'s No. 1 Littrell, NE cor. Sec. 31-3n-3w. S.D. 299 ft.

MARSHALL COUNTY

Paul Robb's No. 1 Vittetoe, C NE SE Sec. 11-5s-4e..... Drlg. 4,855 ft.

MURRAY COUNTY

Gilcrease Oil Co.'s No. 1 Brown, SW cor. Sec. 26-1n-2e Drlg. 1,260 ft.
T. E. Revell et al's No. 1 Wolfe, NE cor. Sec. 18-1-2.... Drlg. 2,230 ft.

PUSHMATAHA COUNTY

J. V. Scrivener et al's No. 1 Swink, C NE SE Sec. 29-4s-20e ..... Setting csg. 410 ft.
Whitehead et al's No. 1 Messer, SE SW SW Sec. 35-2s-18e. T.D. 2,405 ft.; S.D.

STEPHENS COUNTY

J. W. Madison's No. 1 Tussey, SW SE NW Sec. 34-1n-4w.. S.D. 3,210 ft.
Geo. Pace et al's No. 1 Siever, SE SW Sec. 4-1n-7w ..... Drlg. 2,890 ft.

TILLMAN COUNTY

J. H. Everett's No. 1 Crane, SW cor. Sec. 15-2s-14w ..... Rig.
Ben Russell's No. 1 Fowler, SE NW Sec. 21-4s-12w..... Rigging up.

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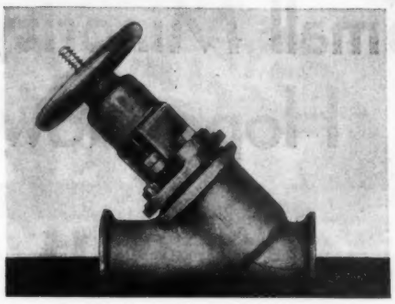

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Small Minority Blocking California Agreement; Hope Now Lies in Federal Petroleum Bill

By L. P. STOCKMAN
Staff Correspondent, California Fields

LOS ANGELES, Calif., May 21.—With California marketers floundering around in a "where do we go from here" attitude due to the failure of several independent refiners to sign the marketing agreement, the outcome of the proposed plan to stabilize distribution of motor fuel on the Pacific Coast remains in doubt. Sponsors are still hopeful of success although a small minority has blocked attempts to stabilize marketing policies. The situation is particularly interesting because major marketers, who have agreed to provide independent refiners with sufficient crude and natural gasoline to meet requirements, may find themselves faced with a possible shortage unless California is given a substantial increase in allowable production of crude. Crude stocks are pegged as of December 31, 1933, and consequently cannot be reduced to any great extent.

Within the past 10 days, three of the four holdouts agreed to sign the new marketing agreement provided their claims for special consideration prove acceptable. The fourth has flatly refused for the present to sign the agreement and thus a lot of hard work may go for naught.

California marketers have been marking time awaiting the new Federal petroleum bill introduced in Congress. If this bill is passed it should remove most of the objections to the proposed marketing agreement as some of the objectors are willing to abide by the marketing policies but are loath to support any plan which will enhance curtailment of crude production.

Notwithstanding the dubious status of the marketing agreement, major refiners have proceeded to perfect the administrative features of the agency which is proposed to be set up for absorbing unsold gasoline and to supply necessary raw material to independent refiners as provided in the agreement. The agency is open to all refiners but it appears probable only major companies will be members as other refiners would rather be in the position of sellers than buyers. Each member of the agency will contribute in proportion to the gasoline sold in 1933 to the total quantity sold by all members. Shell Oil Co. has dissolved its secondary outlet, Guardian Oil Co., and is now conforming with approved principles of marketing practice. Decisions in the recent suits filed by the Department of Justice in connection with secondary outlets have not yet been announced.

Curtailment Observance

For some reason there has been a general breakdown in the curtailment program principally in the Long Beach Field, and to a lesser degree at Huntington Beach. A recent check indicated a number of operators are producing as they please and independent refiners are buying whatever they please. Several operators in the Mountain View Field are likewise guilty of overproducing although they have been warned. Some operators have assumed the attitude of "what are you going to do about it?" At least 95 per cent of California operators are conforming with curtailment and some means of bringing the balance into line must be found. The new marketing agreement, which prohibits purchase or utilization of hot oil, and the bill before Congress will cure most of the trouble if put into effect.

Summer is approaching and refined prices are still far out of line so marketers must either substantially increase refined prices or cut the posted price of crude. There is no justification for the present disparity between crude and refined prices since California marketers are shipping fuel oil east for domestic consumption at 55 cents per barrel f.o.b. ships at San Pedro. Independent refiners have been given a quota under the new marketing agreement of approximately 3 per cent in excess of their aggregate gasoline sales during 1933. If they could not sell their quota in 1933 how can they sell their quota during 1934? If they fail to market their quotas the agency will purchase the amount unsold. What could be fairer? Playing both ends they would like the protection of the agency from a sales standpoint but at the same time want to be in a position of overproducing from their own properties. So what?

Many Completions

The cumulative effect of drilling operations started several months ago was manifested this week by completion of an abnormally large number of new wells. In Mountain View and Kettleman Hills there is a relatively large number of drilling wells under way. Tideland development is nearing completion at Huntington Beach and Long Beach cannot sustain the present rate indefinitely but decreased drilling in these fields will be more than offset by development in Montebello, Inglewood, Dominguez, Elwood, San Miguelito, Belridge, Kettleman Hills and Mountain View.

Unfavorable developments in the Montebello Field, which established the outer limits of production in the eastern end of the structure, will reduce the new work projected for 1934 but we may anticipate additional drilling within a few months. Much depends upon the outcome of three deep wells being drilled by Texas Co. One, No. 4 Barry, is getting quite deep and is causing some anxiety among operators interested in the deep Cruz zone. Standard is running 6 strings of tools, St. Helens Petroleum Co. one and Texas Co. three. All of the Standard wells are in what is regarded as proved territory. Universal Consolidated has drilled two dry holes to 7,680 feet and 6,950 feet and is attempting to recomplete No. 1 Cruz after drilling into bottom water at 7,505 feet and then plugging back to 7,110 feet. Community Oil Co.'s No. 1 Germain looks like a hopeless job as the hole after being plugged back from 7,447 feet to 5,555 feet shows salt water.

Mountain View

The Mountain View Field of Kern County, destined to become California's hot spot within a few months, yielded two good wells this week and a check of work indicates several additional potential producers will be tanking oil within 30 days. A. T. Jergins got his first commercial producer when No. 1 Nance was brought in flowing 2,430 bbls. of 24.6 gravity oil per day from 5,714 feet. This well was hung up a month or two ago but the redrilling job was successfully finished. Jergins is drilling two other wells at Mountain View and has locations staked for three more.

Sovereign Oil Co. finished a fairly good well when No. 1 S. J. Development was brought in flowing 1,259 bbls. of 28.4 gravity oil per day from 5,807 feet after finishing the hole with a 5¾-inch liner including 245 feet of perforated. This new well, like the new producer of the Jergins Trust, is in Section 30-30-29. Union Oil Co. has spudded in No. 1 Wible in the western end and it should be finished about July 15. It is in what is considered proved territory and a good well is anticipated. Standard, Petrol Corp., Mohawk, Hubro Oil Corp. and Hogan Petroleum Co. should all complete new wells within 30 days. Completion of Barnsdall's No. 1 Mott will make it obligatory for Hogan Petroleum Co. to drill one new well with a possibility of two. On the adjoining acreage Shell, due to lease requirements, will find it necessary to start an offset to No. 1 Mott and the new project to be started by Hogan Petroleum.

Kettleman Hills

Three new wells were completed in the Kettleman North Dome Field and preparations are under way to finish another within a fortnight. The Kettleman North Dome Association had two of the three wells finished this week by completing No. 78-20-J flowing 1,510 bbls. of 33.6 gravity oil and 1,380,000 feet of gas per day, and No. 54-28-J doing 6,383 bbls. of 33.7 gravity oil and 7,835,000 feet of gas daily. The former was bottomed at 8,640 feet but plugged back to 8,453 feet while the latter was finished at 8,485 feet. Kenda also put No. 36-20-J on a production test after concluding drilling operations at 8,700 feet but it came in wet and was subsequently killed preliminary to plugging back. Kenda's next completions should be No. 67-20-J and No. 4-20-J, both in the oil sand.

Standard's No. 38-19-J proved an exceptionally good well as it showed an initial daily production of 10,141 bbls. of 34.1 gravity oil and approximately 19,000,000 feet of gas. It was bottomed at 8,785 feet and finished with a 7-inch liner perforated at 7,975-8,354 feet and at 8,504-8,785 feet and a 4½-inch flow string. Standard, like Kenda, has several tests nearing completion and is starting additional wells. Union is making splendid progress in redrilling No. 1 Lillis-Welsh but it will be 30 days before the outcome can be ascertained. It is now just below the 10,200-foot level and seems to be going right along although extreme caution is being exercised to prevent a repetition of the difficulties that forced Ed McAdams to give up the attempt. This well will be drilled to approximately 10,900 feet and an additional protective string of casing landed before making any further hole as some difficulty may be experienced in effecting a tight cement job. Union is making hole on a recent spud on the Amerada King lease and is grading for rig location for No. 7 King. In the Middle Dome of Kettleman Hills, Petroleum Securities is making good progress in No. 58-19-V at 5,900 feet.

Lost Hills-Belridge

General Petroleum Corp. has just passed the 11,200-foot mark in No. 1 Berry, a deep test in the South Belridge Field of Kern County and is still drilling. Approximately 25 feet of hole is being made daily but it seems to be only a matter of time before mechanical difficulty will force a suspension of drilling unless the company should pick up something that might justify a production test. Ed McAdams' No. 1 Lillis-Welsh, however, may yet become the world's deepest producer. In the North Belridge Field, Belridge Oil Co. is drilling two new wells, Union Oil Co. one, with Continental Oil Co. scheduled to begin drilling operations on a new well within 15 days.

Edison District

The Edison district northeast of the Mountain View Field of Kern County took on a promising outlook this week when Monterey Exploration Co. brought

TANKER SHIPMENTS FROM LOS ANGELES TO DOMESTIC AND FOREIGN PORTS

	May 6		Apr. 29			
	Total this week	Daily average	Total last week	Daily average	This year to date	Same time last year
Intercoastal-domestic—						
Fuel oil	208,364	29,766	355,900	50,843	5,545,245	591,444
Diesel and gas oil	81,143	11,592	68,897	9,842	931,159	1,085,064
Gasoline	220,299	31,471	226,286	32,327	2,167,666	3,045,634
Kerosene	.....	.....	75,494	10,785	502,880	411,076
Other finished oil	.....	.....	.....	.....	15,171	30,635
Other unfinished oil	.....	.....	.....	.....	.....	72,584
Foreign exports—						
Crude oil	236,818	33,688	174,715	24,959	1,684,432	2,634,951
Fuel oil	514,293	73,470	113,474	16,211	4,409,537	2,578,841
Diesel and gas oil	224,527	32,075	4,842	692	1,556,476	1,243,413
Gasoline	136,249	19,464	82,637	11,805	1,432,037	2,068,234
Kerosene	36,203	5,172	94,497	13,500	585,515	682,289
Other finished oil	.....	.....	.....	.....	3,529	.....
Other unfinished oil	.....	.....	.....	.....	127,271	.....
Coastwise-domestic—						
Crude oil	192,330	27,476	273,915	39,131	3,715,710	3,963,681
Fuel oil	211,615	30,231	251,190	35,884	4,120,192	3,481,027
Diesel and gas oil	5,963	852	61,177	8,740	317,571	522,732
Gasoline	298,758	42,680	258,419	36,917	4,076,775	4,404,731
Kerosene	.....	.....	6,450	921	64,414	81,184
Naphtha distillates	.....	.....	.....	.....	.....	27,651

TANKER SHIPMENTS FROM SAN FRANCISCO TO DOMESTIC AND FOREIGN PORTS

Intercoastal-domestic—						
Fuel oil	.....	.....	49,995	7,142	49,995	.....
Diesel and gas oil	.....	.....	.....	.....	448,113	280,531
Gasoline	.....	.....	.....	.....	72,625	290,326
Kerosene	.....	.....	.....	.....	197,498	406,405
Lubricants	.....	.....	.....	.....	18,331	16,400
Foreign exports—						
Crude oil	.....	.....	72,895	10,414	666,462	629,722
Fuel oil	16,121	2,303	77,264	11,038	425,487	252,511
Diesel and gas oil	.....	.....	.....	.....	580,136	414,679
Gasoline	.....	.....	111,048	15,864	1,268,923	1,699,388
Kerosene	.....	.....	70,552	10,079	302,773	389,233
Lubricants	1,198	171	2,924	418	62,580	57,706
Other finished oil	.....	.....	.....	.....	2,760	3,745
Other unfinished oil	.....	.....	.....	.....	5,750	19,166
Coastwise-domestic—						
Fuel oil	130,757	25,832	24,398	3,485	1,324,980	1,013,780
Diesel and gas oil	.....	.....	.....	.....	87,039	153,041
Gasoline	94,136	13,455	80,541	11,506	1,435,674	1,212,237
Kerosene	.....	.....	.....	.....	44,690	87,531

in No. 3 Duff doing 375 bbls. of 21.2 gravity oil per day from 3,280 feet after the hole had been plugged back from 3,342 feet. It may require another test or two before the real importance of the area may be ascertained. Geological conditions are more or less conjectural but it is probable a field somewhat comparable with Mount Poso and Round Mountain exists. Barnsdall recently acquired some acreage in this section and further development may be anticipated. Barnsdall, incidentally, is not overlooking any bets and this company has been right on its toes during the past several years.

Standard Oil Co. matched the success achieved by Honolulu Oil Corp. in the Midway-Sunset Field by completing a new well flowing 1,076 bbls. of clean 27.5 gravity oil per day early in the week. Standard's new well was No. 61-15-D in Section 15-32-24, bottomed at 2,900 feet and finished with a 7-inch liner including 102 feet of perforated. Honolulu focussed the attention of operators on this section several months ago by finishing an exceptionally good well and then duplicated the feat. This company has No. 32 in Section 14-32-24 standing cemented on top of the pay at 2,925 feet and should make a production test within 10 days. Shell added a new well in the Mount Poso Field of Kern County a few days ago when No. 7 Security was brought in pumping 571 bbls. of 16.4 gravity oil daily from 1,748 feet. Union Oil Co. finished No. 1 S.&M. pumping 495 bbls. of 16.3 gravity oil per day from 1,780 feet. Development work has shown a consistent increase in the Mount Poso Field.

Elwood

Caroline Spalding completed a well in the Elwood Field of Santa Barbara County, No. 8 on tideland permit No. 93, flowing 1,230 bbls. of 33.4 gravity oil per day from the Vaqueros at 3,682 feet after the hole had been finished with a 6⅝-inch liner carrying 249 feet of perforated. East Elwood Petroleum Co. is making good footage in No. 1 Bishop-Evans in Section 14-4-29 but it will be several weeks before the bit is deep enough to pick up the pay. In the Capitan Field of Santa Barbara County, the General Petroleum is expected to resume work on No. 9 Erburu. Fred Cole's No. 1 Perkins in the Santa Barbara Mesa Field came in with a bang late this week but no accurate figures are available as to its initial production. It is probable this well will show a relatively good initial daily production and then show an abrupt decline.

Ventura Avenue

The Ventura Avenue Field is expected to become active as both the Associated and Shell are making preparations to start several wells. The allowable daily production has resulted in considerable controversy during the past few weeks due to special consideration given it by the Central Proration Committee in the past. Preliminary figures released early in May cut the allowable to 26,425 bbls. per day but this was increased to 30,925 bbls. per day. It has been officially reported that a certain large operator in this field refused to play ball on the marketing agreement unless the field was given a minimum allowable of 30,000 bbls. per day.

The situation reached the point where Umpire Pemberton deemed it necessary to issue a statement in behalf of the proration committee. He advised critics that "in the past there has been a wide divergence in the allotment given similar wells in different fields. This office has constantly favored a discontinuance of this practice and has sponsored the adoption of a uniform method. The Central Committee has seen fit to approach closer than ever before to such a method, as the current May schedules indicate. The desire is that wells of equivalent

IMPORTANT NORTHERN CALIFORNIA WILDCATS

Company, well, location—	S.T.R.	Depth	Status:
General Pet., No. 9 Capitan, Santa Barbara Co.	32- 5-30	rig	rigged up
Shell Oil Co., No. 2 Capitan, Santa Barbara Co.	32- 5-30	1,771	wet
Lincoln Drlg. Co., No. 3 Summerland, Santa Barbara Co.	21- 4-26	2,303	suspended
Dietzmann, J., No. 1 Summerland, Santa Barbara Co.	16- 4-26	3,329	suspended
Fairview Oil Co., No. 1 Purisima, Santa Barbara Co.	18- 7-34	3,381	hd. sd. drilling
Barnsdall-Rio Grande, No. 8 Doty Elwood, Santa Barbara	15- 4-29	4,868	redrilling
Signal O. & G. Co., No. 2 Elwood, Santa Barbara Co.	tideland	5,415	fish tubing
East Elwood Pet. Co., No. 1 Elwood, Santa Barbara Co.	14- 4-29	1,240	sd. sh. drilling
Hastain & Stone, No. 1 Goleta, Santa Barbara Co.	9- 4-28	1,221	sd. sh. drilling
Cuyama Oil Co., No. 1 Cuyama, Santa Barbara Co.	12-10-27	4,002	suspended
Union, No. 2 Santa Maria, Santa Barbara Co.	24-10-34	....	location
Woodrow Pet., No. 1 Rincon, Ventura Co.	4- 3-24	7,612	suspended
Continental, No. 3 San Miguelito, Ventura Co.	23- 3-24	621	cemented
Hancock Oil Co., No. 1 Fillmore, Ventura Co.	13- 4-19	3,357	repair csg.
Oil Ridge Oil Co., No. 1 Fillmore, Ventura Co.	1- 4-19	649	hd. sh. drilling
Oak Mountain Oil Co., No. 1 Sespe, Ventura Co.	1- 4-20	2,697	suspended
Duke Oil Co., No. 1 Bardsdale, Ventura Co.	6- 3-19	....	material
Bolsa Chica Oil Co., No. 1 Piru, Ventura Co.	4- 4-18	2,494	will deepen
Williamson & Donaher, No. 1 Simi, Ventura Co.	36- 3-18	960	sd. sh. drilling
Prop. Service Corp., No. 1 Lloyd, Ventura Co.	24- 3-23	rig	rigging up
Laing & Jacobs, No. 1 Shiells, Ventura Co.	32- 4-19	703	fishing baller
Kirk, W. A., No. 1 Sulphur Mountain, Ventura Co.	21- 4-22	1,954	suspended
Mosher, J. W., No. 1 Santa Paula, Ventura Co.	22- 4-21	1,920	prod. test
Las Posas Pet., No. 1 Las Posas, Ventura Co.	22- 3-20	6,360	gr. sd. drilling
International Oil Developers, No. 1 Conejo, Ventura Co.	33- 2-20	3,068	awaiting pipe
Hub Pet Co., No. 1 Gould Hills, Kern Co.	22-29-21	6,840	suspended
Shell Oil Co., No. 1 Gould Hills, Kern Co.	21-29-21	4,200	br. sh. drilling
Standard Oil Co., No. 1 McKittrick, Kern Co.	15-30-22	2,000	reaming
Casa Mira Oil Co., No. 1 Belridge, Kern Co.	29-28-20	4,982	cemented
General Pet., No. 1 Belridge, Kern Co.	30-28-21	11,196	br. sh. drilling
Union Oil Co., No. 18 Belridge, Kern Co.	36-27-20	7,330	br. sh. drilling
Associated, No. 1 Lost Hills, Kern Co.	2-26-20	7,858	suspended
Inland Pacific, No. 1 Semi-Tropic, Kern Co.	29-25-21	1,118	suspended
Howells Bros., No. 1 Round Mountain, Kern Co.	32-28-29	2,380	plug bottom
Semaphore Oil Co., No. 1 McVan area, Kern Co.	14-27-27	1,230	plug bottom
Ohio Oil Co., No. 1 Buena Vista, Kern Co.	31-31-26	7,586	sd. sh. drilling
Caravel Pet., No. 1 Edison, Kern Co.	19-30-30	1,560	sd. sh. drilling
Alta Oil Co., No. 1 Union Avenue, Kern Co.	6-30-28	6,457	prod. test
Mountain View Dev. Co., No. 1 Mountain View, Kern Co.	12-30-28	1,260	sd. sh. drilling
Mountain View Oil Co., No. 1 Mountain View, Kern Co.	25-30-28	2,051	sd. sh. drilling
Severns Drilling Co., No. 1 Mountain View, Kern Co.	24-30-28	6,097	suspended
Union Oil Co., No. 2 Mountain View, Kern Co.	23-30-28	rig	rigging up
Hogan Pet. Co., No. 4 Mountain View, Kern Co.	29-30-29	5,650	sd. sh. drilling
Standard, No. 1 Mountain View, Kern Co.	19-30-29	5,841	sd. sh. drilling
Jergins Trust, No. 1 Edison, Kern Co.	23-30-29	2,347	recemented
Commanche Oil Co., No. 1 Commanche, Kern Co.	15-32-29	3,400	hd. sd. drilling
Tejon Ridge Oil Co., No. 1 Commanche, Kern Co.	23-32-29	rig	rigging up
Badger Oil Co., No. 1 Wheeler Ridge, Kern Co.	31-11-19	5,980	suspended
Russ Oil Synd., No. 1 Kingsburg, Fresno Co.	28-12-11	4,004	suspended
Bergman, Harry, No. 1 Kingsburg, Fresno Co.	12-12-11	5,664	gr. sd. drilling
Graham & Loftus, No. 1 Raisin City, Fresno Co.	20-15-18	5,906	suspended
Emerich Oil Co., No. 1 Mendota, Fresno Co.	35-13-13	4,575	abandoned
Western Gulf, No. 1 S. P., Fresno Co.	15-17-15	8,500	hd. sh. drilling
Hogan Pet. Co., No. 1 Joaquin Ridge, Fresno Co.	28-20-16	6,605	suspended
Kent & McDonald, No. 1 Carrizo Plains, San Luis Obispo	5-32-22	3,550	suspended
Farrell Pet., well No. 1, San Luis Obispo Co.	18-31-12	1,760	sd. sh. drilling
Commonwealth Consd. Gas Co., No. 1 Tulare Lake, Kings	21-22-20	1,530	bl. sh. drilling
Armadillo Oil Co., No. 1 Tulare Lake, Kings Co.	32-22-20	1,316	suspended
Tulare Basin Oil Co., No. 1 Tulare Lake, Kings Co.	2-23-19	1,192	recemented
Tulare Basin Oil Co., No. 2 Tulare Lake, Kings Co.	2-23-19	1,200	suspended
Kettleman Pac. Oil Co., No. 1 Tulare Lake, Kings Co.	11-23-16	812	sd. sh. drilling
Douglas, J. M., well No. 1 Monterey Co.	36-22- 9	3,496	br. sh. drilling
Oakdale Oil Co., No. 1 Oakdale, Stanislaus Co.	5- 2-10	4,760	redrilling
Pacific Northern Oil Co., No. 1 Guinda, Yolo Co.	23-12- 3	6,760	suspended
Buttes Oilfields Co., No. 1 Marysville, Sutter Co.	35-16- 1	2,731	gas—shut in
Buttes Oilfields Co., No. 3 Marysville, Sutter Co.	35-16- 1	4,320	suspended
Milham Exploration Co., No. 1 Tracy, San Joaquin Co.	5- 4- 5	4,049	hd. sh. drilling
Orland Oil Synd., No. 1 Orland, Tehama Co.	31-23- 3	3,790	suspended
Tehama Pet., No. 1 Murdock, Glenn Co.	10-22- 5	620	suspended
Pure Oil Co., No. 1 Chawchilla, Madera Co.	7-10-14	607	sd. drilling

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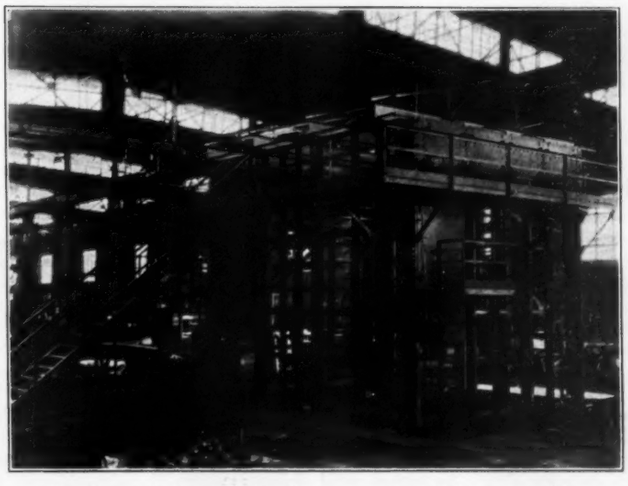

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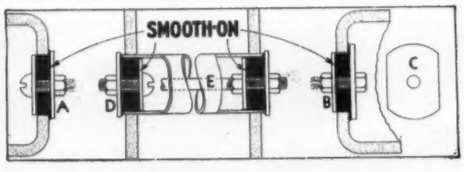

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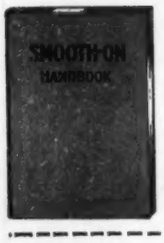

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depth and potentialities in different fields shall have the same allotments. There is no defense for allocating oil in such fashion that a well capable of making 1,000 bbls. in one field should have three or four times as much allotment as a well capable of making 1,000 bbls. in another field.

"For several years many fields have enjoyed quotas very much larger than quotas given to other less favored fields. Ventura Avenue has been one of the favored fields and wells in this field of equal size of wells of other fields, have enjoyed a much higher allotment. With the advent of Federal interest in the manner in which oil is allocated in California has come the desirability of being able to defend allocations, and even though Federal regulation may not be accomplished, it is highly desirable that under a purely voluntary plan of curtailment, allotments should be so fair and nondiscriminatory as to preclude any producer being able to show that his quota was far lower than that of another.

"The application of such a uniform plan would, it is true, give Ventura Avenue at this time a daily quota of approximately 23,000 bbls. by adding up the allotments which each well would get were these allotments to be exactly the same as wells of similar depth and potentialities in other fields. Space will not permit of a comparison to be made over the past several months to show that Ventura Avenue actually has been one of the favored fields, but I can state without contradiction that this is nevertheless a fact. The belief that operators in Los Angeles Basin fields are at the back of a plot to reduce the allotment of Ventura Avenue is not true. The facts are that the saner, best informed, more conservative and fair thinking operators, be they big or little, and regardless of the fields in which they operate, and including the oil umpire, are behind a movement to obtain uniform nondiscriminating and defensible allocations within the state."

Long Beach

Four wells were put on production in the Long Beach Field of Los Angeles Basin although two were reconditioning jobs. These were Del Mar Drilling Co.'s No. 1 Signal returned to production doing 166 bbls. of pipe line oil per day from a depth of 5,151 feet, and Italo Petroleum Corp.'s No. 1 Lightburn finished pumping 104 bbls. of 26.3 gravity oil per day from 4,500 feet. R. R. Bush Oil Co. completed No. 1 fee pumping 190 bbls. of 24.7 gravity oil cutting approximately 15 per cent from 3,891 feet. The Wil Daw Oil Co.'s No. 2 Signal was the best well as it was brought in pumping 214 bbls. of relatively clean 26.8 gravity oil daily from 3,597 feet.

Ohio Oil Co. added a new well in the Playa Del Rey Field when No. 14 Recreation was brought in on the beam doing 347 bbls. of 22.2 gravity oil per day from the shallow zone at 3,385 feet. This is the first completion by the Ohio at Del Rey in several months. In the Huntington Beach Field, Centralia Oil Co. recompleted No. 3 pumping 150 bbls. of 22.9 gravity oil after redrilling and deepening to 4,792 feet. Petitions are being circulated by a group of Huntington Beach operators to place a proposition on the next state ballot providing for transfer of tideland properties at Huntington Beach to the municipality. The electorate of the state has already twice defeated this or similar actions.

J. C. Van Eck in Favor of Production Control Bill

NEW YORK, May 21.—Ernest Sturm, chairman of the Continental Insurance Co., was elected a director of the Shell Union Oil Corp. at the annual meeting of stockholders today. At the meeting it was announced that Viscount Bearsted, chairman of the Shell Transport & Trading Co., Ltd., and J. B. A. Kessler, joint managing director of the Royal Dutch Petroleum Co., were retiring as directors of the corporation. By action of the stockholders the number of directors was reduced from 21 to 17. With the election of Mr. Sturm the board now has the required number of members.

In response to a question from a stockholder, J. C. Van Eck, chairman of the executive committee who presided at the meeting, expressed himself as in favor of the so-called Ickes control bill now pending in Congress. Mr. Van Eck, who is also a member of the Planning and Coordination Committee at Washington, said he believed that the passage of the bill would aid the efforts being made to control crude oil production and eliminate oversupplies.

MONOPOLY IS ABOLISHED

ST. JOHNS, Newfoundland, May 19. Announcement has been made that the new commission government established last year to control Newfoundland affairs will shortly terminate the monopoly on the sale of petroleum products in Newfoundland now held by Imperial Oil, Ltd. The commission will retire the 1932 bond issue to which the company subscribed $1,750,000 in return for the concession.

IMPORTANT SOUTHERN CALIFORNIA WILDCATS

Company, well, location—	S.T.R.	Depth	Status:
Clayton, G. L., No. 1 Clearwater, Los Angeles Co.	31- 3-12	6,550	suspended
Clark & Miller, No. 1 Hermosa, Los Angeles Co.	31- 3-14	rig	rigging up
Domingues Oil Co., No. 1 Dominguez, Los Angeles Co.	34- 3-13	4,770	redrilling
Quinn, J. B., No. 1 Dominguez, Los Angeles Co.	3- 4-13	4,481	hd. sd. drilling
Kelly & Son, No. 1 Torrance, Los Angeles Co.	7- 4-13	6,435	suspended
Nudson, T. T., No. 1 Inglewood, Los Angeles Co.	17- 2-14	2,946	sd. sh. drilling
Scientia Oil Co., No. 1 Inglewood, Los Angeles Co.	7- 2-14	rig	skidding rig
Standard Oil Co., No. 1 Inglewood Deep, Los Angeles Co.	7- 2-14	2,241	sd. sh. drilling
Pacific Western, No. 1 Inglewood Deep, Los Angeles Co.	8- 2-14	1,848	hd. sh. drilling
Kieps Oil Co., No. 1 Inglewood, Los Angeles Co.	17- 2-14	rig	rigged up
Plymouth Oil Co., No. 1 Inglewood, Los Angeles Co.	8- 2-14	702	sd. sh. drilling
Wilshire, No. 1 Potrero Deep, Los Angeles Co.	27- 2-14	6,880	sd. sh. drilling
Community Oil Co., No. 1 Montebello, Los Angeles Co.	34- 1-11	7,447	tested wet
Universal Consd., No. 1 Montebello Deep, Los Angeles Co.	5- 2-11	7,505	replugged
Universal Consd., No. 2 Montebello Deep, Los Angeles Co.	5- 2-11	6,950	suspended
Universal Consd., No. 3 Montebello Deep, Los Angeles Co.	5- 2-11	7,680	suspended
Texas Co., No. 1 Montebello Deep, Los Angeles Co.	6- 2-11	6,900	sd. sh. drilling
Standard, No. 1 Montebello Deep, Los Angeles Co.	6- 2-11	4,772	sd. sh. drilling
St. Helens, No. 1 Montebello Deep, Los Angeles Co.	6- 2-11	3,000	sd. sh. drilling
Frontier Oil Co., No. 1 Pico, Los Angeles Co.	7- 2-11	1,500	cemented
Midfield Oil Co., No. 1 Pico, Los Angeles Co.	19- 2-11	4,641	br. sh. drilling
Barstow Oil Co., No. 1 Saugus, Los Angeles Co.	35- 5-16	2,126	suspended
Barstow Oil Co., No. 2 Saugus, Los Angeles Co.	35- 5-16	mtl.	building rig
Alpha Oil Co., No. 1 Calabasas, Los Angeles Co.	22- 1-18	1,339	suspended
International Dev. Co., No. 1 Saugus, Los Angeles Co.	34- 5-16	708	sd. sh. drilling
B. & L. Drlg. Co., No. 1 Newhall, Los Angeles Co.	14- 3-16	....	location
Alexander, W. L., No. 1 Sunland, Los Angeles Co.	7- 2-14	1,248	suspended
Black Eagle Oil Co., No. 1 Huntington, Orange Co.	tideland	3,985	redrilling
Nuoil Co., No. 1 Newport, Orange Co.	29- 6-10	6,455	prod. test
Harding, John, No. 1 Fairview, Orange Co.	9- 6-10	904	sd. sh. drilling
Spelk Oil Co., No. 1 Fairview, Orange Co.	9- 6-10	606	sd. sh. drilling
Explorers Oil Co., No. 1 Fairview, Orange Co.	9- 6-10	....	location
Placentia Dev. Co., No. 1 Placentia, Orange Co.	31- 3- 9	4,531	redrilling
Mid-Rich Drlg. Co., No. 1 Atwood, Orange Co.	26- 3- 9	630	cleaning out
Rubena, Sy., No. 1 Atwood, Orange Co.	19- 3-10	3,405	sd. sh. drilling
Union, No. 1 Coyote, Orange Co.	22- 3-10	rig	rigging up
Bardeen Pet., No. 1 Coyote, Orange Co.	13- 3-10	4,760	sd. sh. drilling
Bridger, J., No. 1 Coyote, Orange Co.	15- 3-10	2,112	sd. sh. drilling
Severns Drlg. Co., No. 2 Coyote, Orange Co.	24- 3-11	7,272	rigged up
Great American Pet., No. 1 Chino, San Bernardino Co.	18- 2- 8	2,642	suspended
Great American Pet., No. 2 Chino, San Bernardino Co.	18- 2- 8	2,930	sd. sh. drilling
Tehama Pet., No. 1 Santa Ana Canyon, San Bernardino	33- 2- 8	1,295	test WSO
San Diego Pet. Co., No. 1 Chula Vista, San Diego Co.	32-18- 2	3,085	sd. sh. drilling

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Among Gulf Coast Drilling Contractors

Carl B. King Drilling Co. is rigging up on a location at Welsh, La., for the Tide Water Oil Co., about a mile south of the old Welsh Field. This test will be watched with interest as it will be a search for deep production on the flank of an old shallow pool which has been producing for years. This drilling company also has one rig running at Goose Creek on its own lease, one in East Texas for the Tide Water Oil Co., one in Jal, N. Mex., for the General Crude Oil Co., and another in the same field for the Barnsdall Oil Co. Three other rigs owned by the same company are running in Pontotoc County, Oklahoma, one for E. H. Moore and Sinclair Prairie Oil Co.; one for E. H. Moore and others; and one for Deaner and Moore.

M. J. Delaney has one rig running in the Goose Creek Field for Jay Simmons of Dallas. Location is on the Kirwin-Mitchell lease. This is Mr. Delaney's first drilling venture in the Gulf Coast, his previous drilling activities having been confined largely to Oklahoma, North Texas and East Texas. Mr. Delaney is president of the National Drilling Contractors Association, and also president of the Regional Drilling Contractors Association, embracing Texas, Louisiana, New Mexico and Arkansas. Mr. Delaney also has two rigs running in the Pampa area, one rotary rig for the Sun Oil Co., and one cable tool rig for himself and others.

John F. Merrick, Merrick Drilling Co., has just completed a hole for Imperator Oil Co. (Androdi interests) at Goose Creek.

C. & R. G. Drilling Co. (Gus Cormier), has spudded in No. 1 Maco Stewart, 4 miles south of Dickinson, Galveston County, Texas, for George K. Spoor.

Loffland Brothers, Oklahoma contractors, have moved in two rigs for the Superior Oil Co. in the new Bosco Field, Acadia Parish, Louisiana.

Smith & McDannald, Houston, are also moving in two additional rigs for the Superior Oil Co. in the Bosco Field, where they have been awarded three drilling contracts. C. L. McKinney will be in charge of tools for this company in this field. The company has also finished a well for Stanolind Oil & Gas Co. at Greta and moved on to another location for the same company.

Mitchell Drilling Co., W. M. Mitchell, Tulsa, has moved a rig into northeast Harris County to drill a well for W. U. Paul. Location is about 7 miles east of New Caney, and 16 miles north of Crosby, on the House acreage in the Mary McGruder Survey. This is Mitchell Drilling Co.'s first venture in the Gulf Coast.

Noble Drilling Co. has one rig running on a wildcat for the Amerada Petroleum Corp. and the Stanolind Oil & Gas Co. near Hempstead. The same company has another rig running for the Stanolind Oil & Gas Co. near Katy, Tex.

Milam Drilling Co. has moved a rig on a location for the Sun Oil Co. 13 miles from Brenham towards Westley, about 4 miles from the shallow production at Westley. This company has just completed its twenty-first well for the Sun Oil Co. in and around Freer, Tex.

Harvey & Rush are drilling a test in the Faulk Survey, between Cleveland and Dayton, for Harry Sample and others. This is a wildcat. The company is also drilling a test for Frazier & Greer at Kountz, Tex., where Arch Parker has charge of tools.

W. Claud Smith is drilling two tests at Tomball for the Texas Co. Bill Taylor is in charge of tools.

Reading & Bates are coring their second well on their own acreage at Livingston.

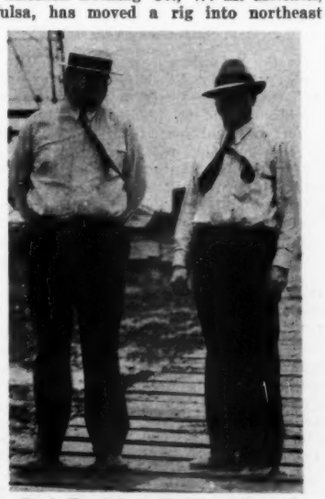
J. Z. Werby is rigging up on a location 2 miles north of the Gist gas wells in the Livingston area.

Kirk Cornell is drilling a test for the Amerada Petroleum Corp. at Tomball, Tex.

C. & C. Drilling Co. is drilling around 3,000 feet on a test for the Gem Oil Co. in Polk County.

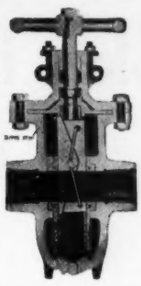
Cron & Gracey have moved a rig into Manvel for the Texas Co.

Steen Drilling Co. has five rigs running, one at Splendora on its own acreage, two in Ector County for the Landreth Production Co., one in the Converse area on its own acreage, and one near Gladewater in East Texas on its own acreage.



Carl B. King (left) and J. I. (Ike) Hull, of the Carl B. King Drilling Co., snapped on location at Welsh, La., where the company is to drill a well for the Tide Water Oil Co.

According to Red Griffith (the grinning gent on the right) this is the type of hook it required to lift him out of the oil tool business after 20 years and put him into business for himself. The only difference, he says, is that he used to call on the Oil Field Fraternity, and now the Fraternity calls on him when in Houston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Roanoke, in Jefferson Davis Parish, in Spotlight; Bosco Prospect Is Promised Active Play

By A. C. EASTERWOOD
Gulf Coast Bureau, The Oil and Gas Journal

HOUSTON, Tex., May 21.—Interest on the Gulf Coast during the week was turned to the Roanoke area in Jefferson Davis Parish, Louisiana, where Shell Petroleum Corp.'s No. 1 Kratzer gave indications of opening a new field when it showed favorably on a drill stem test. If productive it will mark the opening of the second producing area discovered in the deeply seated salt dome region of the Louisiana Gulf Coast within three weeks. The other discovery is the new Bosco Field in the easternmost limits of Acadia Parish now scheduled for one of the most active wildcat drilling campaigns ever witnessed on the coast.

Shell Petroleum Corp.'s No. 1 Kratzer, about a mile northeast of Humble's No. 2 Devilbiss, recently completed dry hole, made a 12-minute drill stem test from 8,659-77 feet and recovered 5½ bbls. of 37 gravity pipe line oil after building up a pressure of 70 pounds. The test showed no water. The well was carried to 8,682 feet in sand and is reported from a reliable source only 4 feet of the sand thus far drilled carried saturation. Top of the sand was encountered at 8,672 feet. Late in the week it had set and cemented a string of 7-inch casing at 8,661 feet and was waiting on cement to set. Plugs will probably be drilled the first of the week and a screen setting made. It topped the Discorbis at 7,650 feet, had top of Heterostegina at 7,976 feet, and encountered top of Marginulina at 8,366 feet.

Seven wells have been drilled in the area, five by the Vacuum Oil Co. and two by Humble Oil & Refining Co. Vacuum's deepest test was carried to a total depth of 6,631 feet while Humble's recent completion, No. 2 Devilbiss, was drilled to 8,423 feet and abandoned after numerous attempts to make a producer.

Royalty around the well during early part of the week was bringing around $200 per acre but later prices had doubled and were $400 per acre and over. The latter part of the week a one-one hundred twenty-eighth royalty interest in the J. N. Taylor 320 acres, south of the well brought $4,000. one-sixty-fourth royalty in the south 160 acres of the E. R. Carter land, north of the well sold for $6,500, and one-one hundred twenty-eighth interest in the same 160 acres brought $3,250.

Bosco Locations

The area around the Bosco producer, discovery in the extreme eastern part of Acadia Parish, will continue to hold interest of the Gulf Coast operators for possibly several months. Eleven locations have already been made in the immediate area, most of which will be drilled immediately. Superior Oil Co. of California was rigging up and preparing to spud on all six of its new locations, four of which are in Acadia Parish and two in St. Landry Parish. Humble Oil & Refining Co. has staked location for No. 1 Joseph Berb on a 100-acre tract in Section 21, about 1½ miles north and slightly west of the discovery while Shell Petroleum Corp. made location for No. 1 E. M. Eliabautrout in Section 22, about 1½ miles due north of the producer. Standard of Kansas has staked two locations in its 45-acre tract, about 2,000 feet south of the discovery, and is reported building derrick foundations for No. 1. Magnolia Petroleum Co. has also staked a location. Due to the expiration date of some of the leases Superior will drill six of its wells simultaneously, marking the second extensive wildcat drilling program of this type ever undertaken on the Gulf Coast. The first was carried on by the Pure Oil Co. at Louise in Wharton County, where it had eight wells drilling at one time.

Superior Oil Co.'s No. 1 P. O. Hermandes, about 4 miles north of Duson, proved the Bosco geophysical prospect productive about three weeks ago when the well came in flowing at the rate of 31½ bbls. oil per hour through twelve-sixty-fourths inch choke with 1,360 pounds pressure. At last report it was flowing at the rate of around 800 bbls. daily. The well was drilled to a total depth of 8,916 feet in sand and set a string of 7-inch casing at 8,830 feet. Perforations in the casing were made from 7,845-50 feet, from which it is now producing. The deeper sands, of which there are said to be about six, were never tested although some of them looked even better than the present producing sand.

Northwest of Superior's discovery and in Section 24-7s-1e, Woodley Petroleum Co.'s No. 1 Daigle was rigging up and preparing to spud.

Splendora Area

In the Splendora area of eastern Montgomery County, Steen Drilling Co.'s No. 1 Texas Long Leaf, topped the upper Cockfield sand at 5,818 feet and drilled 9 feet of sand from 5,818-27 feet. Late in the week on a 12-minute drill stem test with one-quarter inch chokes on top and bottom, it built up a pressure of 550 pounds and 1 gallon of distillate was recovered on top of one joint of mud. The test showed no water. Total depth of the hole is now 5,841 feet and is reported running approximately 51 feet higher than the first hole. The first hole topped the Hockley at 4,930 feet and the new hole at 4,910 feet or 20 feet higher. This well, which held interest throughout the Gulf Coast for several months, was formerly carried to a total depth of 6,053 feet and tested salt water in sand from 6,016-53 feet. It cored sand with a good odor of oil from 6,039-45 feet but tested water at the lower depth. The first hole had sand at 5,855-77 feet and made a drill stem test in which a pressure of 350 pounds was built up in three and one-half minutes and in which 2½ gallons of distillate and 2 gallons of mud were recovered. It was then cored deeper and the second drill stem test from 5,873-84 feet showed one joint of brown distillate and built up 575 pounds pressure in 15 minutes. Humble Oil & Refining Co.'s No. 1 Texas Long Leaf, about a mile north and slightly east of Steen's well, was drilling below 1,200 feet in shale after cementing surface casing.

McElroy Oil Corp.'s No. 1 Grogan Cochran Lumber Co., west of Conroe and north of Goodwin, had drilled into salt water sand in the Cockfield at 4,904 feet. It topped the Hockley at 3,790 feet actual or 3,607 feet subsea.

Cleveland Area

Also of much importance during the past week was the announcement of Gulf Production Co.'s new location in the Cleveland area of Liberty County along with its dry hole southwest of the discovery well. Possibilities of finding production southwest of the Cleveland discovery well was cut off during the past week, leaving only the area west of the well yet to be tested. Wells have been drilled on the north, east and south of the discovery, all of which were failures. The discovery well and only producer for the field, Gulf's No. 1 Kirby, came in for 1,300 bbls. daily late last December. Gulf's No. 3-C Kirby, southwest of No. 1 producer and in the direction of Brown & Wheeler's No. 1 Goldberg dry hole, drilled to a total depth of 5,986 feet and was abandoned as dry. It topped the Vicksburg at 4,117 feet, had top of Warreni at 4,269 feet, drilled Fayette at 4,721 feet, encountered Massilina Pratti at 4,819 feet, topped Hockley at 4,870 feet, and had Camerina at 5,723 feet. Surface elevation is 123 feet. Gulf staked location for No. 4-C Kirby, 1,700 feet due west of No. 1 and late in the week was moving in material. Gulf's No. 2-C Kirby, south of the discovery, had reached a depth of 8,734 feet and had drill stem stuck.

Northwest of Cleveland and in San Jacinto County, Turnbull & Irwin were moving in rig for No. 1 Foster Lumber Co. which will be watched with much interest. It is 440 feet west of Shell's 100-acre tract and 150 feet south of Evergreen road in the northwest part of the William Dobie Survey.

About 15 miles east and a little south of the Cleveland area, Turnbull & Irwin's No. 1 N. Hildebrandt, in Liberty County, was abandoned as dry with total depth of 7,006 feet. There seems to be a great dip in the area around the well and according to very reliable information it never encountered the Cockfield. It had the Marginulina from 6,815-25 feet and encountered the Hockley at 6,920-42 feet. Surface elevation is 106 feet. It had top of Catahoula at 3,506 feet and Discorbis at 3,832 feet.

Midway between Turnbull & Irwin's dry hole and the Cleveland area, H. Sample's No. 1 Security Trust Co. in the J. Faulk Survey,was drilling at 3,900 feet. It topped the Heterostegina at 3,280 feet actual or 3,155 feet subsea.

South of the old Hull Field and south of Raywood, Sun Oil Co. is reported to have taken several tracts during the past week in the Peter Mason Survey.

Jackson County

About a mile from the town of Vanderbilt in Jackson County, Encio Gas Co.'s No. 1 Toney, which proved the existence of a new producing area two weeks ago, when it came in good for over 500 bbls. of 33 gravity oil daily, is still holding much interest in the area. The well was allowed to flow between 400 to 500 bbls. daily for several days and an analysis of the crude is reported to have showed

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a trace of salt water. The well was then pinched to around 70 bbls. daily. It had sand with streaks of shale from 5,575-82 feet, which is the total depth in the Frio. The well topped the Discorbis at 4,635 feet, had top of the Heterostegina at 4,964 feet, and encountered top of Marginulina at 5,100 feet. Surface elevation is 20 feet. Several leases have changed hands around the well with some acreage bringing as high as $4,000 per acre. Farther from the well, Shell is reported to have taken around 3,700 acres of the J. M. Bennett land in the Raymond Musquiz Survey, south of Vanderbilt.

The Texas Co. is reported to have taken about 100 acres of the Mitchell tract in the Raymond Musquiz Survey, near the well. Heep Oil Co. is reported to have taken 320 acres of the Bartlett tract and will drill a 6,000-foot test.

Atkins & O'Neil's No. 1 Ward, in Block 8, I.&G.N. Survey No. 18, about 6 miles east of the discovery, was drilling below 6,753 feet.

Harris County

South of the Bammel area in western Harris County, American Liberty Oil Co.'s No. 1 Clappert, which has held much interest since the first of the year when it started up, has been abandoned with a total depth of 6,639 feet. Due to the favorable indications encountered in this well operators plan another test in the near future. It topped the Heterostegina at 3,070 feet, had top of Vicksburg at 4,495 feet, top Warreni at 4,700 feet, drilled top of Hockley at 5,375 feet, and encountered top of Cockfield at 6,230 feet. Surface elevation is 117 feet.

In the extreme east and north end of the county and south of the Cleveland and Splendora areas, W. U. Paul's No. 1 E. M. House in the M. Magruder Survey was spudding. About 5 miles north of Goose Creek and in the Ashbell Smith Survey, J. E. Seiber's No. 1 Tyrell and Gareth were coring in the Miocene with a slight show of oil at 3,404 feet. East of Houston and west of Lynchburg the Imperator Oil Co. has acquired around 2,000 acres centering around the Richard and Robert Vince Survey on which a 6,000-foot test is scheduled to start by June 3. Humble Oil & Refining Co. and Gulf Production Co. are reported to have already taken protection in the area.

It is reported that at the present time eight geophysical crews are working in Harris County. Just west of American Liberty Oil Co.'s dry hole and in the S. Contreras Survey, Humble Oil & Refining Co. is reported working a reflection crew. Gulf Production Co. is also reported working the area around the well with a pendulum crew. Just west of Houston, Gulf has a three-instrument torsion balance crew working the area. Midway between Genoa and Deer Creek in the southeast part of the county, Stanolind is reported to be working a four-instrument torsion balance crew. Amerada Petroleum Corp. has a reflection crew working the Hargrove Survey. East of Houston and east of Highlands, Sun is reported working a reflection crew. In the western part of the county and northeast of Katy, Texas Co. is reported to have a reflection crew. On the Harris and Brazoria County line, northeast of Stafford, Turnbull & Irwin are reported working a torsion balance crew.

Waller County

In southeastern Waller County, Stanolind and Amerada Petroleum Corp.'s No. 1 M. Manors heirs, one of the most important tests at the present time in the Gulf Coast, was drilling hard sand at 4,650 feet. The well topped the Heterostegina at 2,765 feet and had top of Warreni at 4,610 feet actual, or 4,423 feet subsea.

Hardin County

North of Kountze in Hardin County, Greer & Frazier's No. 1 O. Sternberg, which has been attracting attention for two weeks, topped the Cockfield at 6,770 feet actual, or 6,693 feet subsea, and had penetrated the Cockfield 79 feet with no sand yet encountered. Total depth

(Continued on Page 70)

Gulf Coast Fields and Wildcats

Week Ending May 19

RACCOON BEND—AUSTIN COUNTY

Company, farm and location—	Remarks:
Humble O. & R. Co.'s No. 4-B Rufus Hardy, 2,086 ft. from S line and 430 ft. from W line of Sec. 49, J. Groce grant	Coring shale 4,128 ft.
Humble O. & R. Co.'s No. 5 L. B. Sherwood, W. C. White Sur., Abst. 101	T.D. 3,383 ft.; W.O.C.

MANVEL—BRAZORIA COUNTY

Shell Pet. Corp.'s No. 2 Gubert, 268 ft. from N and 325 ft. from E line of Lot 29, C. O'Donnell Sur. No. 74	Location.
Shell Pet. Corp.'s No. 3 Gubert, 70 ft. from S line and 40 ft. from W line of Lot 28, C. O'Donnell Sur.	Location.
Texas Co.'s No. 10-B Belcher, 2,658 ft. N. 48 deg. 9 ft. W and 330 ft. N, 41 deg. 51 ft. E of S cor. of lease in H. N. Little Survey	Rigging up.
Texas Co.'s No. 1 Boff, 265 ft. from S and 325 ft. from W line of C of Lot 24, H.T.&B. Sur. No. 74	Coring sand and shale 6,990 ft.
Texas Co.'s No. 1 Cascio, 200 ft. E of Scopel lease and 330 ft. at right angles SW of Belcher "B" lease	Sand show oil 5,148 ft.; comp. 524 bbls. day, ¼-in. choke, T.P. 695 lbs., C.P. 585 lbs.
Texas Co.'s No. 1 F. Lieder, 330 ft. from S line and 262 ft. from W line of Lot 9, H. M. Little Sur.	T.D. 4,016 ft.; running screen.
Texas Co.'s No. 1 W. D. Morrison, 743 ft. from N and 441 ft. from E lines of lease, C of Lot 33, A.C.H.&B. Sub., Sec. 91	Drlg. gumbo and lime 2,953 ft.
Texas Co.'s No. 1 Helen J. Way, NE cor. of 50-acre tract in Lot 20, Thos. Spragging Sub.	Drlg. sand, no show, 4,158 ft.

STRATTON RIDGE—BRAZORIA COUNTY

Amerada Pet. Corp.'s No. 5 Seaborn, Austin-Williams Sur., 400 ft. E of No. 3 and 229 ft. S at R/A	Fishing stuck drill stem 7,202 ft.

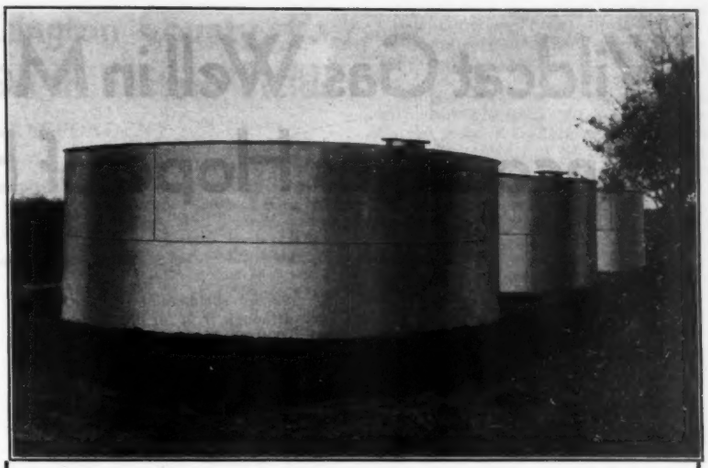
WEST COLUMBIA—BRAZORIA COUNTY

Miramar Oil Corp.'s No. 3 Hogg, 100 ft. N of No. 2 and 100 ft. from W line of lease	Rigging up.

BARBERS HILL—CHAMBERS COUNTY

Mills Bennett Prod. Co.'s No. 3-B Gulf fee, 25 ft. out of SE cor. of lease	Drlg. cap rock 1,291 ft.
Mills Bennett Prod. Co.'s No. 3-C Gulf fee, 442 ft. W along S line and 710 ft. N at right angles to S line	T.D. 5,776 ft., salt; top salt 5,740 ft.; P.B. 5,617 ft.; drlg. plugs.
Humble O. & R. Co.'s No. 5-B Kirby, Henry Griffith League, 925 ft. W of E line, 537 ft. N of S line of tract	Drlg. oil sand 4,935 ft.
Moody Corp.'s No. 5-A E. W. Barber, 100 ft. E of W line and 70 ft. N of S line of lease	Drlg. sandy lime 1,333 ft.
Moody Corp.'s No. 6-A Barber, 75 ft. W or E line and 400 ft. N of S line of lease	Location.
Sinclair Prairie Oil Co.'s No. 17-A Wilburn, 150 ft. W of No. 13	Top salt 1,380 ft.; broken lime 3,300 ft.
Sun Oil Co.'s No. 9 Chambers Co., 181 ft. W of No. 8 and 50 ft. from N line of lease	Drlg. rock 1,402 ft.
Sun Oil Co.'s No. 5 Higgins, 125 ft. W of No. 4	Drlg. cap rock 563 ft.
Sun Oil Co.'s No. 16 Wilburn fee, 130 ft. W of No. 15 and 40 ft. from N line of 30-acre tract in William Hodges Sur.	Drlg. sand and shale 4,172 ft.
Sun Oil Co.'s No. 21 J. Wilburn, Wm. Hodges Sur., 50 ft. N of No. 20	Coring oil sand 3,891 ft.

(Continued on Page 81)



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Wildcat Gas Well in Mecosta County, Michigan, Encourages Hope of Building New Pipe Line

By PAUL A. ELLIOTT
Staff Correspondent, Michigan Fields

MUSKEGON, Mich., May 21.—Leading new developments in Michigan fields last week was the completion of the Columbia Oil & Gas Co.'s No. 1 Albert J. Dutmers, SW SE NW Section 23-13n-8w, Hinton Township, Mecosta County, as a 7,500,000-foot well in a wildcat area about 10 miles southeast of the Austin Township, Mecosta County Pool, one of the two largest in the State. Michigan stray sands were topped at 1,308 feet in this well, the first of a series on a 4,000-acre tract, with an almost immediate flow of 1,500,000 feet a day, increased to 7,500,000 feet when the hole was drilled to a total depth of 1,312 feet.

The new well was considered of particular importance in view of the plans of the American Michigan Pipe Line Co. of Muskegon, to start construction of a 55-mile gas line from the Austin Pool to Muskegon as soon as another successful gasser is completed by the Taggart interests. The new well is believed to indicate the presence of a much greater supply of natural gas in this section than had previously been proved by Taggart Brothers' five wells and one drilled by H. C. Nelson of Muskegon with an aggregate open flow capacity of about 85,000,000 feet a day.

The new gasser is on a general southeast structural trend between the Austin Township Pool and the Home Township, Montcalm County, upper Traverse oil pool where two wells of the Daily Crude Oil Co. on the H. P. Christensen heirs lease in Section 10 flowed about 550 and 625 bbls. a day respectively after recent acid treatment.

New Locations

Several operating companies, including the Pure Oil Co., and a number of independents, have announced new locations on the Mecosta-Montcalm structure. Pure has made two locations in Section 10, Montcalm County, and has set up a rig for a west offset to the Christensen lease. Walters and Miller have made location for No. 1 Durbin, NW NE Section 11, Crystal Township, Montcalm County, and location has been made for McClure's No. 1 Johnson, NW NE NE Section 17, Home Township.

Shell Petroleum Corp., Empire Oil & Gas Co., Sun Oil Co. and East Ohio Gas Co. are reported to be showing an interest in the new possibilities.

Another natural gas development of the week was completion of Fletcher and Leyman's No. 1 Keeler-Mitchell, C NW SE Section 10-14n-6w, Broomfield Township, with an open flow of 715,000 feet a day from the Michigan sands. George W. Olsen's No. 1 William Nicholson, NW NW Section 14, an important southeastern extension test, was drilling below 1,300 feet and scheduled to reach possible production in the Michigan formation within a few days. Guy M. Obenauer, trustee's No. 1 J. Diehl, C SE NE Section 15, another possible southeastern extensioner, also is expected to reach the Michigan sands this week. Another well is drilling and four new tests are being started, three in Broomfield and the fourth in Sherman Township, where a mile northwest extension of the pool was brought in two weeks ago by Youman-Burkes Oil Co. It was reported Pure Oil Co. is planning a core testing program in the vicinity of the village of Winn in Fremont Township.

Isabella Oil Development Co.'s No. 3 Bartlett-McClintic, C NW SE Section 2-14n-6w, Broomfield Township, drilled into the Michigan series without striking gas in commercial quantities last week although it is an offset to an original 6,000,000-foot well. Freakish structure is blamed with probabilities the well will be drilled to test the Dundee for oil.

Porter Township

Five more wells were drilled into the Dundee in Porter Township, Midland County, with an aggregate initial production estimated at more than 2,700 bbls. while two others increased 2,700 bbls. over their initial making more than 5,400 bbls. of new production for the week. An Ogemaw County upper Traverse oil well was increased by acid treatment boosting the total to 5,725 bbls.

The largest producer in the Porter Township Pool was Fred Turner and others' No. 2-A Eugene St. Johns, SW NE SW Section 21-13n-1w, which topped the Dundee limestone at 3,379 feet, was drilled to 3,427 feet and made 90 bbls. during the first hour and 60 bbls. an hour later, an estimated initial of 1,400 bbls. a day.

Pure Oil Co. completed two new producers, one in Section 20 and one in Section 21, Porter Township. No. 1-C Laura E. Root, SE NE NW Section 20, made 80 bbls. during the first hour but later dropped to 50 bbls. an hour, an estimated 900 bbls. a day, 52 feet in the Dundee limestone at 3,425 feet. No. 7 Walter Neitzke, NE SE NE Section 21, made 192 bbls. in seven hours and was estimated good for 400 bbls. a day bottomed at 3,428 feet, 53 feet in the Dundee.

Fred Stork's No. 2 W. C. Breu, SE NE SE Section 20, topped the Dundee at 3,386 feet, was drilled to 3,422 feet and had an estimated initial flow of 125 bbls. a day. J. Mark Harvey's No. 2 Farmers State Bank, SW SE SE Section 8, topped the Dundee at 3,410 feet, was drilled 10 feet in and filled up at the rate of 150 feet an hour but did not flow. It will be treated. Two wells previously drilled into the Dundee pay sands in Section 21, now the busiest portion of the pool, made 1,300 and 1,400 bbls. a day more than the original estimates, one after treatment.

Empire Oil & Refining Co.'s No. 1 Mabel Finch, NE SW SE Section 21, was increased from 90 to about 1,400 bbls. a day with acid. Pure Oil Co.'s No. 3-B W. W. Hoyt, SE SE NW Section 21, estimated at 1,500 bbls. a day when brought in last week, actually flowed 2,927 bbls. in the first 24 hours, or 1,427 bbls. more than the estimate.

Although new development has been slowing slightly in the Porter Pool, more than 50 wells either are drilling or about to start with 20 new tests reported scheduled in Section 20 and northwest into Section 18 by Pure Oil Co., which holds most of this acreage.

Vernon Township

W. Hunter Atha's No. 1 William Mahar, C SE SW Section 25-16n-4w, Vernon Township, Isabella County, will be abandoned after a light showing of gas in the Michigan sands before drilling into bottom water. Garfield Oil & Gas Co.'s No. 1 J. White, NW SW SW Section 24, is below 3,250 feet on the way to the Dundee.

Ogemaw County

A show of oil and gas was encountered in T. F. Caldwell's No. 1 E. Hart, NW SW NE Section 19-22n-2e, West Branch Township, Ogemaw County, after it had been drilled about 45 feet in. Drilling will be continued to 160 feet in. It was dry in the upper Traverse. Theodore Oil Co.'s No. 3 Ogemaw Country Club, NW SW SE Section 20, also West Branch Township, was increased about 260 bbls. from an initial of 40 to 300 bbls. by acid treatment in the upper Traverse. McClanahan Oil Co.'s No. 1 A. O. Guilford, NE NE NW Section 29, also West Branch Township, was drilling toward the Monroe at about 2,800 feet after failure in the upper Traverse and Dundee and being watched for possible new developments.

Wildcats

A light show of oil and gas was reported in the Sylvania at about 2,830 feet in A. L. Lyon's No. 1 Woodworth, SE SE SE Section 5, Benton Township, Eaton County, near Lansing.

McClanahan Oil Co. resumed operations on its No. 1 Frackleton, SE SE SE Section 18, Lincoln Township, Clare County, after bringing in a rotary rig and expected to reach 1,500 feet, or possible pay in the Michigan gas series, within a week.

W. J. Bernier has resumed drilling on No. 1 Duncan, Section 9, Vernon Township outpost, now more than 3,200 feet, while McClanahan Oil Co. is well under way in its No. 1 Hicks, Section 27, Denver Township, Isabella County. Jasmid Oil Syndicate's No. 1 Anton Wezensky, Section 30, Denver Township, is more than 2,000 feet.

Two Midland County wildcats, J. P. McHugh's No. 1 State Bank, Section 29, Porter Township, and George Hanners' No. 1 Hoyt, Section 24, Jasper Township, are drilling.

Two Saginaw County tests, Chapin Oil & Gas Co.'s No. 1 Sutliff, Section 16, Chapin County, and Crabon Oil Co.'s No. 1 Berg, Section 26, Birch Run Township, were about 600 feet.

Prairie Oil Development Co.'s No. 1 Moss, Section 19, North Plains Township, Ionia County, is at more than 2,750 feet after a show in the upper Traverse at about 2,600 feet.

Four new Montcalm County tests were getting under way including Daily Oil Co.'s No. 1 Blair, Section 11, Ferris Township, and No. 3 Christensen, Section 3, Home Township; Theodore Oil Co.'s No. 1 Sherwin, Section 13, Home Township, and Old Dutch Oil & Gas Co.'s No. 1 Fowley, Section 11, Belvedere Township.

W. J. Wilson's No. 1 Robinson, Section 27, Richland Township, is drilling at about 500 feet.

In Mecosta County, Taggart Brothers, Inc., are preparing for a new location in Section 2 or 3 of Austin Township, where they will make their next attempt to extend the Austin Township gas pool sufficiently to assure construction of a 55-mile line by the American-Michigan Pipe Line Co. of Muskegon.

Western Michigan

Muskegon Oil Corp. was drilling into the Dundee limestone Saturday in its No. 1 A. Gasser, SE SW NE Section 27-10n-15w, Egelston Township, Muskegon County, second recent test in this area, 9 or 10 miles east of the original field. Dundee was topped at about 2,184 feet.

Reed Oil Co. has started operations on No. 1 William Brinen, SE NW Sec-

Fifteen Completions in the Central West; Fair Producers in the Kentucky Field

By GEORGE A. WHITNEY
Staff Correspondent, Central West Fields

FINDLAY, Ohio, May 21.—In the Lima Field, Huffman and others' No. 1 on the R. C. Baher farm, Section 9, Pleasants Township, Hardin County, produced 4 bbls. initial from the Trenton lime, and Ohio Fuel Gas Co. made a location on the E. V. Jones farm, Section 8, same township. In Wyandot County, McPherson and others' No. 1 was reported making a nice oil showing from 1,338-85 feet on the Catherine Smalley farm, SW Section 3, Crane Township. It was reported as showing for 100 bbls., but according to later advices did not hold up and appeared to have blown the oil out and started making a reported 800,000 feet of gas, which is a real surprise, if true. Mifflin Oil & Gas Co. is drilling on the Charles Rall, Jr., farm, Section 7, same township, and Wyanco Oil & Gas Co. is driling No. 2 E. G. Huffman farm, Section 34, same township. Jones & Coyle are reported at 1,670 feet on the Harry Bardon farm, Section 5, same township.

In Allen County H. C. Miller and others are starting a test on the Arthur B. Moorman farm, Section 35, Spencer Township.

In Auglaize County, two wells are under way, C. Wentzer's test on his own farm, Section 28, Douchoquet Township, and N. Masters and others' No. 2 on the George Ruble farm, Section 11, Noble Township.

In Shelby County Arcanum Oil & Gas Co. is drilling on the John Moyer farm, Section 29, Cynthian Township, A. A. Lauber farm, Section 26, Butler Township, is drilling near the Trenton lime.

CENTRAL OHIO

Fifteen completions were reported in the Central Ohio Field, two dry, eight gas and five oil wells with an initial combined of 130 bbls.

In Ashland County Robinson and others' No. 9 on the W. S. Wolf farm, Section 16, Lake Township, produced 12 bbls. initial. Ohio Fuel Gas Co. is drilling No. 1-5,802 on the G. H. Fulmer farm, Section 12, Hanover Township. Moore and others have a rig for No. 8 on the George W. Black farm, Lot 34, Mohican Township.

In Medina County, O. K. Oil & Gas Co.'s No. 4 Jess Vickers farm, in Lot 2, Chatham Township, produced an initial of 6 bbls. at 515 feet. Preston Oil Co. has a location for No. 21-1,550 J. J. Parent farm, Lot 5, same township. The same company made a location for No. 2-1,549 on the C. A. Dague farm, Lot 1, Litchfield Township. Ohio Fuel Gas Co. has a rig up for No. 1-5,805 on the Lena E. Myers farm, Lot 22, Lafayette Township, and also for No. 1-5,804 on the Arthur S. Clark farm, Lot 45, Medina Township.

(Continued on Page 74)

tion 13-13n-16w, Otto Township, Oceana County, a new wildcat near Fruitvale.

Pure Oil Co.'s No. 1 Beukema, Section 27, Dorr Township, Allegan County, was reported about ready to drill into the Dundee after failing to strike oil or gas in commercial quantities in the upper Traverse.

Southeastern Michigan

Salt water was encountered in the upper Traverse in C. H. Ladd's No. 1 Brooks, a Caledonia Township, Shiawassee County test, while Powers Oil Co. was drilling below 1,000 feet in No. 1 Begole, Section 31, Flint Township, Genessee County.

Six new locations, five in Isabella County and one in Midland County, were announced. McClanahan Oil Co. will drill two in Denver Township, Isabella County, No. 1 Sweeney, NE NW NE Section 33, and No. 1 Demski, Jr., SW SW NW Section 27. Forum Oil Co. made location for No. 1 Campbell, NE NW NW Section 31, Denver Township. Atha Oil Co. will drill on the Regan lease, NW NW Section 36, Vernon Township, and D. F. Jones has made location for No. 1 Swan, SW SW SE Section 1, Broomfield Township. The Midland County location is McClanahan Oil Co.'s No. 3 Breu, NW SE NE Section 20, Porter Township.

A total of 170 new permits have been issued during the first four and one-half months of 1934.

Big Drop in Initial Production in April

Thirty-four fewer wells were produced in the four weeks making up the April operations report than in the five weeks included in the March report, and the initial production dropped 95,625 bbls.

There was not much change in the number of rigs up and wells drilling at the close of the month, compared with the number at the end of March. Following is the summary for April covering all states east of California:

SUMMARY OF ALL FIELDS

Completions

	Comp.	Prod.	Dry	Gas
Eastern	170	633	10	14
Lima	11	60	6	1
Central Ohio	28	315	6	13
Indiana	10	15	5	2
Illinois	2	7	0	1
Kentucky	8	586	2	0
Michigan	30	14,435	7	1
Kansas	72	20,860	20	1
Oklahoma	144	72,800	34	12
North Central Texas	175	16,212	63	2
Texas Panhandle	24	5,883	3	2
West Texas	25	88,115	3	1
East Texas	247	14,740	5	0
East Central Texas	6	329	1	1
East Texas gas area	3	...	2	1
Gulf Coast Texas	72	36,168	17	4
Southwest Texas	99	14,251	44	9
Gulf Coast Louisiana	36	17,997	8	0
North Louisiana	24	850	11	2
Mississippi	4	...	2	2
Arkansas	5	100	4	0
Montana	14	630	6	0
Wyoming	3	...	1	2
Colorado	1	...	1	0
New Mexico	6	13,328	1	1
Total April	1,219	318,314	262	72
Total March	1,253	413,939	270	78
Difference	34	95,625	8	6

Rigs and Wells Drilling

	Rigs	Drlg.	Ttl.
Eastern	70	173	243
Lima	2	24	26
Central Ohio	33	114	147
Indiana	1	39	40
Illinois	2	11	13
Kentucky	0	45	45
Michigan	99	138	237
Kansas	43	127	170
Oklahoma	109	399	508
North Central Texas	64	203	267
Texas Panhandle	39	104	143
West Texas	61	127	188
East Texas	75	262	337
East Central Texas	19	40	59
East Texas gas area	3	11	14
Gulf Coast Texas	31	179	210
Southwest Texas	22	133	155
Gulf Coast Louisiana	14	71	85
North Louisiana	62	94	156
Arkansas	10	28	38
Alabama	0	1	1
Mississippi	6	12	18
Montana	11	42	53
Wyoming	13	71	84
Colorado	3	45	48
New Mexico	12	55	67
Utah	1	14	15
Total April	805	2,562	3,367
Total March	772	2,585	3,357
Difference	33	23	10

Big Gasser in Washington County, Pa.; Thirteen Completions in Eastern Fields

By STAFF CORRESPONDENT

PITTSBURGH, Pa., May 21.—A large volume of gas was struck in Amwell Township, Washington County, Pennsylvania, where Philadelphia Oil Co. was drilling on the Hulda Jenkins farm. Sixteen feet below the top of the Gantz sand, the well had a volume of 6,000,000 feet a day. The top of the Gantz sand was at 2,571 feet and the well was shut down at 2,590 feet. The Pittsburgh Coal was at 735 feet.

This well was being drilled on a location 800 feet southwest of the test of the Carnegie Natural Gas Co. on the Fred L. Baumberger farm, which is a fair producer, and on a line with production south of it. The production in this section is in the Fifth sand at a depth of about 3,000 feet and in correlating with the test on the Baumberger farm, the Gantz sand at that point showed about 200,000 feet of gas a day. Philadelphia Oil Co. has a second well drilling on this farm, the depth of which is now 790 feet.

There were 13 completions and 4 dry holes in the lower Eastern Fields during the week. Seven were producers with an initial production of 242 bbls. and six were gas wells. The majority of new production was in Southeast Ohio, where three fair wells were completed.

SOUTHEAST OHIO

In Belmont County, two gas wells were completed on the edge of the oil pool developed there. In the NW Section 26, Richland Township, O. K. Oil Co. completed two wells on the State School lands, No. 1 being completed in the Maxon sand at a depth of 1,141 feet gauging 375,000 feet of gas a day. No. 2 was drilled in the Berea sand at a depth of 1,868 feet and is showing for 500,000 feet a day.

In the SW Section 20, of the same township, Union Gasoline & Oil Co. drilled on the Gustav Hall farm through the Berea sand to a depth of 1,776 feet. It was a dry hole. In the SW Section 1, Charles Wilcox and others drilled a test on the W. A. McFetridge farm through the Berea sand to 1,900 feet. It also was dry.

In Coshocton County, Preston Oil Co. completed No. 4 on the F. H. Donaker farm in Section 17, Perry Township. It was drilled in the Clinton sand at a depth of 3,115 feet and filled up 1,750 feet in the first 24 hours, natural. It will be shot and is estimated good for 60 bbls. a day.

In Holmes County, there were two fair completions. On Lot 27, in Hardy Township, Ohio Producing & Refining Co. completed No. 7 on the Cassie Sterling farm in the Clinton sand at 3,537 feet and it produced 75 bbls. the first day after shot. In this township but on Lot 20, Texas Gas Utilities Co. completed No. 3 on the Mary A. Beeler farm in the Clinton sand, depth 3,656 feet, and it produced 50 bbls. the first day after shot.

In Washington County, Witcherman Oil Co. completed a test on the P. D. Howiller farm in the SW Section 16, Aurelius Township, in well defined territory. It was drilled in the Berea sand at 1,697 feet and after shot filled up 200 feet in 30 minutes. It is estimated good for about 3 bbls. a day.

WEST VIRGINIA

One additional well was completed in Lost Run Pool, Clay district, Ritchie County, West Virginia. Boehm and Strickler Oil Co. completed No. 6 on the Boehm and Stricker lease in the Injun sand at a depth of 2,015 feet showing for 40 bbls. a day, natural. None of the wells in this pool is producing over 50 bbls. a day and the head appears off the Injun sand streak.

There were two other producers completed in West Virginia, both in Ritchie County. In Murphy district, King Knob Gas Co. completed No. 5 on the Peyton Lingler farm on Lambs Run in the Injun sand, showing for 8 bbls. a day along with about 400,000 feet of gas. In Harrisville, J. F. Deem completed a test on the W. F. Cannon lease at a total depth of 1,984 feet. The Big Injun sand was at 1,815 feet and there is a showing for 6 bbls. a day from that and the Squaw sand.

North of the Lost Run Pool in the Bonds Creek Pool in Clay district, Ritchie County, Locke, Simonton and S. V. Riggs and others drilled a test on the W. J. Wince heirs farm and about 200 feet south of the J. F. Kelly well. It was dry through the Squaw sand. In Murphy district, Ritchie County, L. E. and L. H. McClure and others drilled a test on the J. A. Gregg farm to 2,469 feet. There was a small showing of gas in the Salt sand but the Big Injun and Berea grit were dry. It is being abandoned.

Gas Wells

In Kanawha County, Godfrey L. Cabot, Inc., completed No. 40 on the A. D. Huntington lease in Cabin Creek district in the Big Lime at a depth of 2,337 feet. It is a gas well gauging at 600,000 feet a day.

In Nichols County, Godfrey L. Cabot, Inc., completed a second test on the W. E. Smith farm in Jefferson district in the Keener and Big Injun sands. The total depth was 2,861 feet and it will make a small gasser.

In Wayne County, C. L. Dixon completed a test on the Charles Jones farm in Stonewall district at a total depth of 1,590 feet. It has a showing of 165,000 feet a day from the Injun sand. The Big Lime was at 1,336-1,526 feet, and the Big Injun at 1,543-80 feet.

Drilling In West Virginia

In Boone County, no tests are drilling. Godfrey L. Cabot, Inc., is down 400 feet in No. 53 on the Federal Coal Co. in Sherman district and is building a road to a location for No. 54. He has rigged up for No. 3 on the Central Trust Co. In Washington district, he has reached 525 feet on the Henry Keadle farm and is fishing for tools on the Sidney White farm at 665 feet. Pond Fork Oil & Gas Co. has reached 925 feet in No. 17 on the Cole and Crane lease. In Sherman district, Pure Oil Co. is drilling two wells on the Federal Coal Co. lease and has a rig built for a third.

In Cabell County, the following wells are drilling: In Guyandotte district, United Fuel Gas Co. is at 725 feet in No. 4,389 on the J. W. Starkey farm; May Gas Co. is at 1,700 feet on the G. I. Neal farm; Graham Gas Co. is at 1,900 feet on the Frank Marchetti farm; Guyan Valley Gas Co. is at 2,175 feet on the Colored Children's Home, and Leonard Paugh is rigging on the Leonard Paugh lot. In McComas district, the following are drilling: Madison Gas Co. at 1,450 feet on the Wade H. Holton farm; West Virginia Gas Co. at 2,100 feet on the George Pruett farm, and at 1,600 feet on the John J. Porter farm.

In Calhoun County, A. Rothwell and others has been issued a permit on the S. H. Knight and Mollie Blankenship farm in Sheridan district. In Washington district, Kenny and Phillips have completed drilling deeper the old No. 1 on the J. C. Carpenter farm and are testing. Everett Starcher and others have reached 800 feet on the Curtis and Ella May farm. Eastern State Gas Co. is down 450 feet in a second test on the A. J. Boggs farm. In Sherman district, L. P. Bickel has reached 1,000 feet in No. 14 on the Martha Stump heirs farm. R. Fowler and others are down 475 feet in a second well on the Lafayette Stump farm. In Center district, Starcher and Richards have finished building a rig on the James Wilson farm.

In Gilmer County, McCall and others have started drilling No. 3 on the Lee Gainer farm in DeKalb district. In this district, Starcher and Richards are drilling at 350 feet on the O. C. McQuain heirs farm. In Center district, Godfrey L. Cabot, Inc., is shut down testing the oil in old No. 2 on the J. P. Norman farm at 1,630 feet and drilling at 1,600 feet in old No. 1 on the A. H. Blackshire farm which is being drilled to the Berea. Mountain Iron & Supply Co. has reached 1,210 feet in No. 2 on the A. H. Stump farm. Hope Construction & Refining Co. is down 1,510 feet in No. 3,569 on the Mary A. Stump farm.

Kanawha County

In Kanawha County, Pure Oil Co. has a permit for another well on the William Coal Co. lease in Cabin Creek district. In Malden district, Godfrey L. Cabot, Inc., has a permit and is building a road to a location for No. 6 on the W. P. Tomkins heirs farm. The same operator has reached 1,487 feet in No. 6 on the Campbells Creek Coal Co. lease. In Cabin Creek district, his No. 43 on the A. D. Huntington lease is drilling at 900 feet and a rig is being built for No. 44.

In Putnam County, Midway City Gas Co. has been issued a permit on the Rufus Switzer farm in Curry district. In Ceredo district, Wayne County, J. H. Wilson is down 400 feet on the Hamilton Land Co.

In Ritchie County, the most active at the present time, Wright and Hanlon have made a location on the Napoleon Wright farm in Union district. In Murphy district, W. H. Bickle has started drilling a second test on the U. S. Fluharty heirs farm. In Grant district, H. N. Rinehart has a permit for No. 8 on the F. H. Markey farm. J. M. Satterfield has a permit on the A. L. Mulenix farm. Leeton and Flanigan have reached 1,400 feet on the David Gray heirs farm. Petroleum Producing Co. is fishing at 700 feet on the Jennie Carroll farm. In Clay district, Claude Cottrille and others have located a drilling machine on the Lillie Riggs farm about 1½ miles north of the Lost Run Pool and near the fair well on the Hanlon farm. Glenn F. McBurney has a permit on the G. H. Darnell farm. Howard Robinson is down 1,385 feet on the William Flanigan farm. W. Bickerstaff has reached 1,090 feet on the Martin McMullens heirs farm.

In Roane County, J. D. Silcott and others are rigging up on the John B. Lukens farm in Spencer district. Guy Boggess and others are drilling at 2,150 feet on the William Stine farm. In Geary district, United Fuel Gas Co. has a permit on S. R. Tawney farm. Frank Finley and others have rigged up for a second test on the W. Hunter Smith farm. In Smithfield district, United Fuel Gas Co. is down 1,850 feet in No. 4,387 on the W. R. Wright farm. In Curtis district, Reedy Oil & Gas Corp. has reached 850 feet on the G. A. Knopp farm.

In Marshall County, Manufacturers Light & Heat Co. has started drilling No. 3,513 on the J. C. Clouster farm in Liberty district. In Wetzel County, G. N. Yoho and others have started drilling on the J. W. Monroe farm in Proctor district. In Wirt County, A. E. McIntosh has a permit on the B. C. Tucker farm in Spring Creek district, and Southern Oil Co. one on the M. Richter farm in Burning Springs district.

SOUTHWEST PENNSYLVANIA

There were no other completions in Southwest Pennsylvania. In Amwell Township, Washington County, Union Gasoline & Oil Co. is spudding in a second test on the Mary B. Lindley farm. Raymond Orrill and others have a rig completed and are rigging up for No. 4 on the G. L. Walker farm. Carnegie Natural Gas Co. is plugging the test on

the John C. Murphy farm which was a very light gas well. This company is also plugging the test on the C. W. Dunn farm which was drilled to the Fifth sand with only a show of oil and not helped by a 90-quart shot in that formation. This company is completing a rig on the N. B. Redd farm and has not started building on the Cole and Farabee leases on which locations were made.

In East Findley Township, Washington County, Union Gasoline & Oil Co. has started drilling No. 3 on the J. N. Clutter farm offsetting the Myers Hoskinson well on the J. N. Clutter farm which is still producing about 85 bbls. a day. The same company has a rig completed for No. 4 on that farm offsetting Myers Hoskinson's No. 2 on the narrow Clutter strip which is now drilling at 1,645 feet. Levier and others have reached 2,550 feet on the James Marshall farm and there was no gas in the Injun sand. Natural Gas Co. of West Virginia has reached 1,785 feet on the Leroy Ealy farm, and has started drilling on the Bedillion lease.

In South Franklin Township, Washington County, Furman Nuss and others have started drilling on the Jason Buchanon farm located halfway between Point Lookout and Lagonda. The Pittsburgh Coal was at 508 feet. E. H. and J. B. Tague have completed a rig at No. 10 on the Adaline D. McKennan estate and have started drilling.

Gulf Coast Fields

(Continued from Page 67)

was 6,849 feet with contract completed and operators were preparing to drill another 200 feet before abandoning the well.

At Sour Lake in Hardin County, Parr and others' No. 1 Benard was still washing and trying to bring in. It had pulled drill stem and had run 2½-inch upset tubing and it was reported the recovery of oil from the washing of the well was estimated about 25 per cent. Alpha Petroleum Co. has staked location to be started within a few days about 122 feet south of the Steinberger location which is a west offset to Parr's well.

Galveston County

About 4 miles south of Dickinson in Galveston County, George K. Spoor's No. 1 Maco Stewart, in the W. K. Wilson Survey, was drilling at 3,045 feet. About 3 miles north, Humble Oil & Refining Co.'s No. 1 Maco Stewart, in the John Sellers Survey, was preparing to spud. Both tests are of great importance. Northwest of the Spoor well and centering around the Alex Farmer Survey, Stanolind Oil Co. is reported working the area with torsion balance. South of Humble's well and centering around the J. O. Sellers Survey, the Texas Co. has a torsion balance crew working.

In the northwest part of the county and centering around the Sarah McKessick Survey, the lease play which started about three weeks ago is still in progress and during the week several independents have taken tracts. Across the line in northeastern Brazoria County, Stanolind Oil & Gas Co. is reported to have taken several large tracts east of Hastings, on its torsion balance prospect.

Refugio County

In the Bonnie View district of Refugio County, Heard-Holland Oil Co.'s No. 1 Peck, which has been creating much interest for two weeks, on a drill stem test in the Greta sand from 4,528-36 feet, showed 12 fourbles of salt water and 5 fourbles of mud with a small amount of gas and a scum of oil in seven minutes. Late in the week it was coring hard rock at 4,609 feet and it is reported the well will be carried to 6,500 feet if necessary. Bunte's No. 2 Rooke was drilling below 3,650 feet and its No. 3 Rooke was below 4,150 feet. North of the Greta Pool and in the John T. McGrew Survey, Texas Co.'s No. 1 James Welder was abandoned as dry with total depth of 6,014 feet.

The new discovered Cockfield production in the old Raccoon Bend Field in Austin County has attracted a nice royalty and lease play around the edge of the old dome with some royalty said to be bringing as high as $700 per acre base. Humble Oil & Refining Co.'s No. 5 L. B. Sherwood was waiting on cement with total depth of 3,383 feet. Its No. 4-B Rufus Hardy was coring shale at 4,128 feet.

Indian Territory Illuminating Oil Co. is reported still taking acreage southeast of New Ulm in the Von Roeder Survey. Practically every major company has worked this area and it was last worked by the Mid-Kansas.

Chambers County

About 1½ miles south of the Hankamer Field in Chambers County, Miramar Oil Co.'s No. 1 George Stengler, in the V. Barrow Survey, has been abandoned with total depth of 6,025 feet. Paul Jones' No. 1 Carada & Smith, in the J. S. Roberts Survey, has been abandoned with total depth of 6,612 feet.

Calhoun County

Heep Oil Co.'s No. 1 Welder, in Calhoun County, was coring at 5,988 feet. A drill stem test from 5,955-73 feet failed to show anything. Its No. 1-B Welder was spudding. West of Heyser in the western part of the county, Heep is reported working a reflection crew in the J. M. Rios Survey.

Jasper County

Northeast of the Spurger area in Jasper County, Louis Franklin's No. 1 Cartwright, in the Edward Legrande Survey, was rigging up. The well will be carried to the Cockfield or 5,100 feet.

Matagorda County

United North & South Development Co.'s No. 1 Unit 4, at Buckeye, Matagorda County, proved a disappointment when it tested salt water in sand at 7,871 feet. It has been shut down waiting orders. The same company's No. 1 Unit 6, has reached a total depth of 9,457 feet but with stuck drill stem, and efforts are being made to shoot around 8,000 feet, sidetrack and drill new hole. This is the second time hole has been lost in this test at a depth below 9,000 feet. It first went to a total depth of 9,257 feet where hole caved or bridged to around 8,000 feet and the hole had to be redrilled.

Wharton County

Pure Oil Co. over the week-end was trying to bring in its No. 2 Lancaster at Louise in western Wharton County. This test is in sand at 5,147 feet, and if a well is completed it will open a new sand, somewhat shallower than others now producing in the field, which are at 6,400 feet and at 7,100 feet. The discovery well was completed in a 5,900-foot sand but it has been abandoned. Three wells are producing in the field, one being on a pneumatic pump, another being a wet gasser, and the third being a flowing oil well.

McFaddin District

In the McFaddin district, southwestern Victoria County, lower Gulf Coast district, the Texas Co. has abandoned its No. 8-A McFaddin as dry at a total depth of 6,459 feet. This test created considerable interest when it successfully negotiated the shallow high pressure gas sands which exist in that area and which had given so much trouble in previous drilling.

North of the Keeran Field in eastern Victoria County, C. & R. G. Drilling Co.'s No. 1 Ross, M. A. Castanon Survey, at latest report was drilling around 4,600 feet. This test is being watched for a possible extension of the Keeran district or the opening of an entirely new productive area.

SOUTH LOUISIANA

About a mile north of production in the Edgerly Field in Calcasieu Parish, Union Sulphur Co.'s No. 1 Louisiana Prairie Narronne is still standing with total depth of 6,520 feet in salt and operators are using the well for seismograph work. In the west extension area of the Lockport Field, Magnolia Petroleum Co.'s No. 11 Bordages has been abandoned as dry with total depth of 7,902 feet. Its No. 7-A Farquahar, also in the west extension area, was completed for 450 bbls. of 40 gravity oil daily through one-quarter inch choke at 6,540 feet. Pressure on tubing was 1,000 pounds and on casing 1,250 pounds.

Tide Water Oil Co. has started drilling a deep test south of the old Welsh shallow field in Jefferson Davis Parish. This test, No. 1 Bourgeois, 250 feet east and 205 feet south of the C Section 28-9s-5w, will be drilled to 7,000 feet or through the Marginulina, in which prolific production has been found on many of the deeply seated salt domes of the coast.

This is the first really deep test for Welsh, which is one of the oldest fields on the Gulf Coast. Production to date has been confined to a comparatively small area from sand around 2,600 feet and shallower. All production is owned by the Yount Lee Oil Co. and for several years there has been no new drilling. No salt has ever been drilled at Welsh, but the field is believed to overlie a very deeply seated dome.

Gillis Prospect

On the Gillis geophysical prospect in Calcasieu Parish, Union Sulphur Co. has abandoned its No. 1 Barbe Estate. Drilling has been suspended for several weeks due to stuck drill stem and lately the hole has been used in shooting operations during rechecking of the area. Bottom of the hole is 8,125 feet, and the test is the second drilled on the prospect, the other, abandoned around 8,000 feet, being about a mile north. Gillis also is believed to be a deeply seated salt dome, such as Iowa, Roanoke, Bosco and others which are being hunted out in the extensive deep drilling play which is going on over the Gulf Coast.

Location already has been made by Union Sulphur Co. at Gillis for a third test, this being No. 2 Barbe, about a mile south and a little east of No. 1 Barbe. It is in the NE cor. SE Section 11-9s-8w. In this district Fohs Oil Co. has leased approximately 2,000 acres between English Bayou and the river and north to within about a mile of the Union Sulphur Co. tests, adjoining the latter's block to the south.

Humble Oil & Refining Co.'s No. 1 Long Bell, in the Dry Creek area of eastern Beauregard Parish and the first major test along the "Conroe trend" in southern Louisiana, late in the week was drilling below 9,180 feet.

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Test Possible Southeasterly Extension of Naphtha Area in South Turner Valley

By VICTOR LAURISTON
Staff Correspondent, Canadian Fields

CHATHAM, Ontario, May 19.—A possible southeasterly extension of the naphtha producing area in South Turner Valley is being tested by Highwood-Sarcee Oils' No. 1, LSD 16, Section 21-18-2w5, which started drilling into the Madison lime at 5,352 feet. In bailing before running the tools, considerable crude naphtha was found in the hole. It had a commercial production of light crude from a brown sand in the Dalhousie at 5,046 feet.

On the east side of the structure, the Northwest Co.'s No. 1 Calgary & Edmonton-Longview, LSD 5, Section 27-18-2w5, is making new hole in the lime at 5,843 feet.

In Section 28-18-2w5, Pacalta Oils' No. 1, LSD 7, will start drilling into production in about a week. A strong wet gas flow was struck in the Madison at 5,053 feet. All three tests should be completed by the middle of June.

In Section 28-18-2w5, Publix Oil & Gas Co.'s No. 1, LSD 8, got a fair show of light crude in the upper Blairmore at 2,820 feet and is deepening below 3,390 feet to the naphtha horizon. Carleton Royalties' No. 1, LSD 2, has derrick up for a new test. Spooner Oils' No. 5 Anaconda, LSD 1, is making new hole below 4,700 feet. Director Royalties' No. 1, LSD 16, is below 4,170 feet. Century Royalties' No. 1, LSD 14, same section, is below 4,092 feet. In the extreme northwest corner of the section. British Dominion Oil & Development Corp.'s No. 5, LSD 6, same section, is below 1,000 feet. Richfield Royalties' No. 1, LSD 5, is below 1,750 feet.

Far South Tests

Due south of Section 28, in Section 21-18-2w5, several new tests are under way. Myers & Wright's No. 1, LSD 14, has spudded in. Farther south, Union-Freehold's No. 1, LSD 8, is below 2,758 feet. Still farther south, and in the southwestern part of the section, Oliver Syndicate's No. 1, LSD 3, has spudded in. This is the farthest south test.

In the Mercury tract, South Turner Valley, Mercury Oils' No. 6, LSD 12, Section 4-19-2w5, will resume from about 2,000 feet. It has been standing for several years. It is immediately south of Mercury's No. 1, one of the largest producers.

In the Central Turner Valley, Okalta Oils' No. 4, LSD 8, Section 1-20-3w5, is below 3,780 feet on a test for light crude above the lime.

Royalite Production Deals

Shareholders of British Dominion Oil & Development Corp., Ltd., of Calgary have approved the sale of their producing wells and deep lime interests in LSD 6, Section 12-20-3w5, to Royalite Oil Co. in exchange for 2,800 shares of Royalite stock. British Dominion subleased 10 acres in NE of LSD 6 from McDougall-Segur Exploration Co. and drilled Nos. 2 and 3, securing a small naphtha recovery from the deep lime. Royalite Oil Co. some weeks ago acquired the McDougall-Segur royalty interest. British Dominion is drilling a deep test in Section 28-18-2w5, which is not included in the deal.

Wellington Oil & Gas Co. has sold its No. 1 producing well, 10-acre sub lease, production equipment and limestone rights in LSD 1, Section 20-19-2w5, South Turner Valley, to Royalite Oil Co. in return for a cash consideration of $100,000.

Directors of Okalta Oils, Ltd., of Calgary have approved sale of the company's naphtha production and deep lime rights in Section 1-20-3w5, Central Turner Valley, to Royalite Oil Co. in return for a stock consideration. The deal, it is understood, will not include light crude production from the upper horizons, being tested by Okalta's No. 4.

McLeod Oil Co., which has completed five deep lime tests on a sublease in LSDs 15 and 16, Section 1-20-3w5, Central Turner Valley, is understood to have received a proposition from the Royalite company for the taking over of its deep lime production and rights, together with production equipment. McLeod's No. 4 is the deepest well in Canada, having been drilled through the Madison lime into the underlying formations to a total depth of 7,755 feet, and is in good shape to continue some distance for a thorough deep test. It is understood the company will retain rights to production from the light crude horizons above the lime, and may utilize its own drilling equipment for the systematic testing of light crude possibilities on its acreage.

Pekisko Structure

Pekisko Hills Co.'s No. 1, LSD 6, Section 6-17-2w5, is arousing considerable interest. It was drilling in brown shale below 685 feet with the hole full of surface water through which gas is coming to the surface. The test has logged even shallower than predicted, and is expected to get the Madison lime between 1,000 and 1,500 feet.

The area being tested is south and east of the Highwood structure, but the two may be related folds. Between 1928 and 1930 several deep tests were drilled on the Highwood structure in Township 18-3w5, on a fold due west of the present new development in South Turner Valley. Several of these tests got the Palaeozoic lime at varying depths, but the formation, which in Turner Valley yielded wet gas and naphtha, failed to show commercial oil though numerous oil and gas shows were encountered in all the wells in both the lime and the upper formations.

Pekisko Hills' No. 1 is farther south and east. The nearest deep test was Western Alberta Oil Co.'s No. 1, LSD 11, Section 7-17-2w5, drilled in 1930, on the N half of the next section north of the Pekisko Hills test. It encountered three gas shows, two of them in the Dalhousie where oil was also met, and an oil show in the deep lime. The latter formation was met at 3,132 feet. The log indicates that the Pekisko Hills test is much higher on structure.

Canadian Royalties, Ltd., is being incorporated to complete Banner Oils' No. 1 unfinished test in LSD 6, Section 34-17-3w5. This test is considerably farther west and north, being about midway between the Pekisko Hills and Highwood structures. Operations will resume this month under direction of Clarence E. Snyder. Banner's No. 1 has been standing since 1930 at 596 feet, after getting the top of the Blairmore formation at about 500 feet.

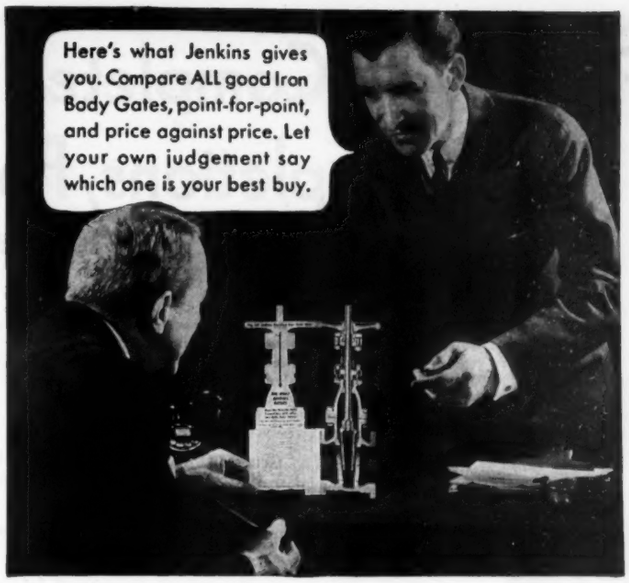
Tests in the Foothills

In the forest reserve area west of Olds, Hunter Valley Oil Co.'s No. 1 McLaren, Township 31-10-5w, is at 2,125 feet and underreaming.

On the Birch Ridge structure west of Calgary, Elbow Oils' No. 1, LSD 11, Section 35-22-5w5, is standing at 4,375 feet. Prairie Royalties' No. 4, LSD 3, Section 6-22-4w5, has spudded in.

On the Watson structure, Raven Oils' No. 1, Section 20-9-2w5, is resuming at 80 feet. It is reported that British in-

(Continued on Page 74)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Four Wells Completed in Jal Pool, New Mexico; Two Completions, Four Locations in Cut Bank

By TOLBERT R. INGRAM
Staff Correspondent, Rocky Mountain Area

DENVER, Colo., May 21.—Continental Oil Co.'s No. 13-B-2 Sholes, in the Jal Pool, New Mexico, was completed for 480 bbls. initial, and Stanolind Oil & Gas Co.'s No. 29-B Farnsworth is a 30,000,000-foot gasser at 2,980 feet. Two new locations were released by the Continental Oil Co. Continental's No. 8-A-1 Meyers, in the Eunice area, is drilling deeper after testing 39 bbls. an hour. Two new locations were made in the Hobbs Pool.

There were no new locations or completions in Colorado. South Park Oil Co.'s No. 1 State, a location released last week, has an elevation of 9,393 feet, believed to be the record for the Rocky Mountain area.

Three completions, one a dry hole, and two new locations were reported in the Osage Field, in Wyoming. The Reeder test in Carbon County again is making hole near the top of the objective.

Two completions, both average wells, and four new locations were reported in the Cut Bank Field in Montana. Continental Oil Co. may drill a wildcat in Stillwater County.

NEW MEXICO

Lea County

Four wells were completed in the Jal Pool, two of which have been near completions for several weeks. Continental Oil Co.'s No. 13-B-2 Sholes, C NW NW Section 13-25-36, found the pay at 3,295-3,320 feet and gauged 480 bbls. of oil and 3,000,000 feet of gas the first day. Total depth is 3,325 feet, in lime. It was pinched in to 202 bbls. per day. It is an offset on the north to the company's No. 13-B-1 Sholes, completed a year ago at 3,270 feet for 2,280 bbls. and 40,000,000 feet of gas.

Stanolind Oil & Gas Co.'s No. 29-B Farnsworth, C SW SW Section 7-26-37, which proves about one-half mile of territory on the northeastern side of the southern part of the field, gauged 30,031,000 feet of dry gas from a total depth of 2,980 feet. It will be completed at this depth as a gas well.

Texas Co.'s No. 1-B Shepard, NW cor. SW Section 5-26-37, an old well drilled deeper, which flowed 130 bbls. of oil and 150 bbls. of water per day at a total depth of 3,355 feet before treating with acid, is flowing 130 bbls. of fluid per hour, of which 23 per cent is water, after treatment, with 8,000,000 feet of gas. Texas Co.'s No. 2 Moberly, C NW SE Section 8-26-37, after plugging back from 3,360 feet to 3,310 feet, is flowing 60 bbls. per day of pipe line oil, having shut off the water.

Two new locations were released in Continental Oil Co.'s No. 13-A-2 Sholes, SE Section 13-25-36, and No. 13-B-3 Sholes, NW Section 13-25-36.

Corrected farm name and location of E. B. Guess and others' No. 1 Conditt, for which cellar has been dug, is NW NE SE Section 11-25-36.

Repollo Oil Co.'s No. 1 Stephens, SW cor. NE Section 13-25-36, is drilling at 601 feet in red rock. Barnsdall Oil Corp.'s No. 1 Forrest, NE NW SW Section 24-25-36, which has been treated twice with acid with poor results, is estimated at 20 to 30 bbls. per day after plugging back from 3,331 to 3,325 feet to shut off sulphur water. It will be given a shot in an effort to increase production. Continental Oil Co.'s No. 13-A-1 Sholes, C SW SE Section 13-25-36, spudded May 5 and is drilling at 260 feet in sand.

Cooper Area

General Crude Oil Co.'s No. 1 Cushing, SW SE NW Section 23-24-36, deepening from 3,205 feet, is coring at 3,319 feet. It was tested at 3,255-3,311 feet and showed for 11,000,000 feet of dry gas.

Eunice Area

Continental Oil Co.'s No. 8-A-1 A. E. Meyers, C NE SW Section 8-21-36, tested through tubing at 3,830 feet, total depth, gauged 39 bbls. of oil per hour with 2,700,000 feet of gas. It is preparing to deepen to 3,875 feet. It is a west offset to Atlantic's No. 1-B State, which made 1,008 bbls. at 3,904 feet. Atlantic Oil Producing Co.'s No. 2-B State, C NE SE Section 8-21-36, is shut down at 45 feet for water, and Tide Water Oil Co.'s No. 2 Coleman, C NW NE Section 17-21-36, is waiting after cementing 9⅝-inch at 2,885 feet with 500 sacks. Gypsy Oil Co.'s No. 1 Bell-State, C SW SE Section 8-21-36, is rigging up rotary.

Lea Area

Texas Co.'s No. 1 Lea, SW cor. NW Section 14-20-34, is still shut down without testing at 3,560 feet, waiting for pipe line connections. Its No. 2-B Lynch, C SE SW Section 27-20-34, is standing at 3,750 feet after treating with acid.

Hobbs Area

Two new locations were made in the Hobbs Pool. Skelly Oil Co.'s No. 2 Turner, C NE NW Section 34-18-38, on the southeastern side of the pool, is rigging up rotary and drilling water well. Repollo Oil Co.'s No. 3 Grimes, NW Section 28-18-38, is a location. Gypsy Oil Co.'s No. 8 West Grimes, NW SW NW Section 32-18-38, is rigging up rotary. Empire Gas & Fuel Co.'s No. 4 Fowler, NE SE NE Section 31-18-38, which gauged 4,925 bbls. open flow before being treated with acid, did not show any material improvement after treatment. Shell Petroleum Corp.'s No. 2-B State, NE cor. NW Section 33-18-38, an outside well, is waiting after cementing the 12½-inch at 276 feet with 250 sacks. Noble Brothers' No. 2 Shell-State, E NE SW Section 24-18-37, is waiting after cementing 12½-inch at 199 feet with 75 sacks.

Eddy County

Stovall & Marshall's No. 1 McIlvain, C SE NE Section 5-25-27, Black River district, is drilling at 2,000 feet in salt.

San Juan County

Continental Oil Co.'s No. 34, C SW SW Section 2-29-19, Rattlesnake Field, is spudding at 118 feet in shale. Meier & Culberson's No. 1 Lemley, NE Section 32-30-11, Aztec district, is drilling at 830 feet, and H. C. Stratton's No. 1 Grauel, SW NE SE Section 25-30-12, set pipe at 735 feet and is drilling close to 1,000 feet. Jack Amenda and others' No. 1, NE SW Section 25-30-12, is drilling at 870 feet with a small show of gas. The Aztec Oil Producers, Inc.'s No. 2, C SE SE Section 28-30-11, is drilling at 1,135 feet.

COLORADO

Moffat County

Mountain Fuel Supply Co.'s No. 3-B Wilson, C SE SW Section 15-12-100, Hiawatha Dome, is coring in the Wasatch formation at 2,776 feet and continues to show considerable gas.

Stanolind Oil & Gas Co.'s No. 32 Parkinson, SW cor. Lot 6, Section 23-4n-92, Iles Dome, reported a completion last week in the Sundance at 3,333 feet after flowing 230 bbls. in one hour, was given another test through a 13/64-inch bean and made 307 bbls. in 24 hours with a back pressure of 240 pounds. The Iles Pool has about 600 acres considered proven territory with around 22 wells on production. The drilling program for the field provides for one well to each 10 acres, which leaves 38 wells to be drilled. These probably will be scattered over a considerable period as the field is not being produced at capacity. The Dotsero cutoff, which will connect the Denver & Salt Lake Railroad with the Denver & Rio Grande Western in northwestern Colorado, will be placed in operation about the middle of June. This cutoff will reduce the distance from the Iles Field to Salt Lake City by 300 miles and it is probable considerable oil from the Iles Field will be shipped to the Utah Oil Refining Co. over this new route to Salt Lake City.

Routt County

Texas Co.'s No. 5 Carstarphen, NW NE NW Section 5-6n-86, Tow Creek Dome, has derrick and sump completed. It will be drilled with cable tools.

Grand County

Colorado Oil Refining Co.'s No. 1 Link, C SW SW Section 13-1n-77, Granby district, spudded May 5 and is drilling at 65 feet in hard rock in the Pierre shale.

Jackson County

Continental Oil Co.'s No. 3 Government, on the Hoye permit, NW cor. NE Section 34-9n-78, South McCallum Dome, is dismantling rig on No. 1 Peterson to move to the new location. It will be drilled with rotary to the gas zone in the first Dakota at around 4,850 feet and will then standardize to get through the troublesome carbon dioxide gas and make a test of lower horizons. It is reported that following completion of this well another will be drilled on the north dome.

Colorado Oil Refining Co.'s No. 1 North Park Coal, NW NW Section 18-9-78, is drilling at 1,250 feet in the Pierre shale and had a good show of oil in sand at 1,210 feet.

Adams County

Hills Dome Lease Development's No. 1 Hills, SE cor. Section 27-3s-64, Watkins district, is standing at 4,190 feet with hole in good condition. It is supposed to have topped the Hygiene group at 3,750 feet and to have enough oil in the shale to squeeze out with the hand. H. G. Wilkinson, of Colorado Springs, recently succeeded Carl Slatt as manager, and contract was let to Frank O. McKain to complete the test. It is expected drilling will be resumed shortly.

Park County

South Park Oil & Gas Co.'s No. 1 Esche, SE cor. NW Section 5-9s-76, Como district, which resumed recently and plugged back from 2,465 feet to 2,200 feet to sidetrack tools and casing, is sidetracking at 2,220 feet.

South Park Oil Co.'s No. 1 State, SW SE SE Section 16-11s-76, Hartsel district, is building road to location. Elevation of this well is 9,393 feet. This is believed to be the highest elevation of any well drilled in the Rocky Mountain area. Ohio Oil Co.'s No. 1 Stathopulos, on the Glade structure in Dolores County, Colorado, which has been standing several years, has an elevation of 8,500 feet and a well drilled in 1929 by the Mountain Oil Corp. on the Wyoming structure in Lincoln County, Wyoming, had an elevation of 8,800 feet.

Fremont County

John Milner and others' No. 1, SW SE SE Section 30-18-69, Florence district, is drilling at 2,710 feet in gray shale, and Waterville Oil Co.'s No. 1 State, SE cor. NW Section 16-18-69, is standing at 2,800 feet waiting for pipe.

Prowers County

Trojan Oil & Gas Co.'s No. 1 Lotus Oil, NW NE NE Section 15-23-46, Lamar district, has pulled 8¼-inch and freed 10-inch and underreamed to 2,112 feet. Hole has been straightened to 2,230 feet. It is planned to cement the 10-inch at between 2,200 and 2,300 feet. Trucking crews have placed on the site large quantities of 8¼ and 6¼-inch pipe and are engaged in transporting 4¾-inch to location.

WYOMING

Albany County

Ohio Oil Co.'s No. 1 Chappell, C SE NW Section 28-21-76, Rock River district, which is being drilled primarily as a test for gas, is making hole at 560 feet in shale.

Carbon County

Earl W. Reeder, Inc.'s No. 1 Union Pacific, C SW SW Section 19-20-83, Overland Dome, has cleaned up its fishing job and is making new hole at 4,465 feet and looking for the main Dakota sand at any time. The 4¾-inch was pulled to recover lost bit and rerun to 4,445 feet. Producers & Refiners Corp.'s No. 4 Wertz, SW cor. SE Section 7-26-89, Wertz Dome, is redrilling at 2,900 feet. Hughes Royalty Co.'s No. 1, NE NE Section 25-26-88, Mahoney Dome, which has been bottomed for some time at 4,030 feet in the Sundance with a bad fishing job, has resumed and has cleaned out to the top of the tools and is fishing.

Fremont County

Premier Oil Co.'s No. 1 Government, SE Section 7-28-92, Kirk Dome, Crook's Gap district, which was shut down several years ago on account of litigation, has resumed at 1,932 feet, total depth, where it had a show of gas, and is cleaning out at 1,083 feet.

Kinney-Coastal Oil Co.'s No. 1 Chatterton-Weeks, C SW NE Section 22-3n-1w, Pilot Butte district, which is being deepened to the Lakota, has cleaned out to old bottom at 3,790 feet and is making new hole at 3,820 feet.

Hot Springs County

California Exploration Co.'s No. 1, NE SE NE Section 12-44-97, Waugh Dome, is drilling at 1,000 feet.

Big Horn County

W. O. Taylor and others' No. 1 Hoskins, Lot 5, Section 25-56-97, Byron district, which Sidney H. Keoughan recently contracted to deepen from 2,855 feet to the Madison lime, is rigging up rotary. Torchlight Oil Corp.'s No. 1, Lot 8, Section 19-51-92, Torchlight district, is plugging back from the Madison at a total depth of 4,165 feet to test 80 feet

of saturation in the Tensleep at around 3,500 feet. It had some saturation in the Madison, but water in the break between that formation and the Tensleep could not be shut off.

Park County

Henderson Producing Co.'s No. 3H9 Government, NW SE NE Section 31-58-99, South Elk Basin, which had a show of oil at 1,714 feet, followed by water in the lower part of the Frontier in 1931, will drill deeper to the Dakota. The 8¼-inch has been landed on bottom at 1,765 feet and will be cemented before resuming.

Stanolind Oil & Gas Co.'s No. 21 Rosenberg, NE SW NE Section 26-58-98, Frannie Dome, is standardizing to pump. Total depth is 3,297 feet and it is estimated good for 400 bbls. from the Tensleep.

Washakie County

Bales Oil Trust's No. 2 Brome, NE NW NW Section 31-48-90, Hidden Dome, which had sulphur water at 1,795 feet and plugged back to 1,527 feet where it had a show of oil, is reported to have been sealed by the Government.

Natrona County

Midway Oil Corp.'s No. 1 Boyer, SW NE NE Section 23-35-79, Midway Dome, is pumping around 60 bbls. of oil and 60 bbls. of water at a total depth of 5,190 feet.

Sheridan County

Sheridan Syndicate's No. 1 Allison, SW SE Section 15-55-85, Beaver Creek, is drilling at 1,000 feet.

Converse County

E. B. Jones and others' No. 1 Pittman, C NE NW Section 27-32-69, Shawnee district, reamed and lowered the 15½-inch to 605 feet and is drilling at 625 feet.

Niobrara County

Interstate Oil & Refining Co.'s No. 1 Morrell, NW NE SE Section 2-39-61, West Mule Creek, is drilling at 2,735 feet in pink shale.

Weston County

Three completions and one new location were reported in the Osage Field. Albert Jones' No. 1 Bock, CWL NW SE Section 21-43-63, in the old shallow field, was completed at 450 feet for 5 bbls. per day on the pump. The pay was at 425-26 feet. West Osage Oil Co.'s No. 3, CSL SE NE Section 15-46-64, in an area where some of the best producers have been brought in, looks as if it will be a dry hole. The sand at 2,101-19 feet was shot with 70 quarts and it is cleaning out with indications that it will not be commercial. C. L. Nichols' No. 4, SE cor. NW Section 8-46-63, also on the east side, made 4 bbls. initial on the pump from shale at 267 feet, total depth. C. L. Nichols' No. 5, CEL SE NW Section 8-46-63, is moving in tools.

Chadron-Osage Oil Co.'s No. 25, SW SE Section 14-46-64, set the 8¼-inch and shut down. Carl Cundy's No. 8, SE NW NE Section 31-46-63, is rigged and ready to spud.

Sweetwater County

Mountain Fuel Supply Co.'s No. 2 Union Pacific, C SW SE Section 11-19-104, North Baxter Basin, cored to 3,194 feet and cemented the 6⅝-inch at 3,132 feet, supposedly on top of the Dakota. It is showing gas and is drilling out plug.

MONTANA

Glacier County

Two completions and four new locations were reported in the Cut Bank Field. Texas Co.'s No. 1 fee, Lot 7, Section 15-35-6w, pumped 60 bbls. in six hours from a total depth of 2,907 feet. The 7-inch was cemented at 2,827 feet.

R. C. Tarrant's No. 3 Britton, C NE SW Section 12-34-6w, found the pay at 2,762-87 feet and oil rose 1,500 feet in the hole. It has not been tested. Total depth is 2,895 feet.

R. C. Tarrant's No. 2 Reickhoff, Lot 9 (SW NW SE), Section 3-34-6w, has cellar completed. Tarrant's No. 4 Britton, C SW SW Section 12-34-6w, has rig on location. Olive Oil Co.'s No. 1 Mattson, 507 feet from west line and 660 feet from south line, NW NW Section 14-34-6w, is a location, and Indian Oil Co.'s No. 1 Reickhoff, Lot 10 (SW SE) Section 3-34-6w, location staked.

P. B. Anderson and others' No. 1 Anderson, SW cor. NW Section 26-35-6w, is drilling at 375 feet, and Annand & Hutchings' No. 1 Bonnett, NW cor. SE Section 10-32-5w, is rigging up. Lon Crumley's No. 2 Weaver, Lot 8, Section 27-35-6w, is spudding, and Indian Oil Co.'s No. 1 Clark, C SE SE Section 4-34-6w, is spudding at 100 feet. The Montana Headlight Oil Co.'s No. 2 Williams, C NE NE Section 11-34-6w, is drilling by pipe at 2,300 feet, with a total depth of 2,795 feet, and its No. 2 Yunck, C NW SW Section 1-34-6w, has rig on location.

Montana Power Gas Co.'s No. 1 Neill, C NE Section 20-33-5w, cleaned up its fishing job and is drilling at 2,930 feet, and its No. 1 People's Unit, East of C, Section 14-33-5w, topped the Colorado at 380 feet and is drilling at 1,610 feet. Same company's No. 3 Seeba, SE cor. NW Section 2-34-6w, is drilling at 2,150 feet.

Nyhagen-Bell's No. 2 Anderson, NW cor. SW Section 26-35-6w, is drilling at 2,500 feet, and Nadeau Brothers' No. 2 Van de Mar, SW NW Section 35-35-6w, cemented the 6⅝-inch at 2,879 feet and is ready to drill in. Par Oil Co.'s No. 3 Haines, SW cor. Section 2-34-6w, is fishing for tools at 480 feet. Producers Development Syndicate's No. 1 Eniarson, SW NW NW Section 29-32-4w, is running pipe at 2,679 feet.

Santa Rita Oil & Gas Co.'s No. 3 Cardwell, C Lot 2, NE Section 15-35-6w, cemented the 6⅝-inch on bottom at 2,887 feet, and its No. 1 Hardy, C Lot 5 (NW NE) Section 27-35-6w, cemented the 6⅝-inch on bottom at 2,867 feet.

R. C. Tarrant's No. 1 Getty, C NE SE Section 2-34-6w, is drilling at 2,100 feet, and his No. 1 Jones, C SW SE Section 31-34-5w, is rigged up.

Texas Co.'s No. 1 Antrim, C Lot 4, SE Section 27-35-6w, is installing pumping unit, and its No. 2 Antrim, C Lot 1, NE NE Section 34-35-6w, cemented the 7-inch at 2,901 feet and is bailing mud. Same company's No. 2 fee, Lot 8, Section 15-35-6w, is drilling at 1,650 feet, and its No. 3 fee, 660 feet south of C Section 15-35-6w, is spudding. Texas Co.'s No. 2 Hinkle, which is waiting for test, is installing pumping unit at 2,868 feet, total depth. The pay is at 2,827-63 feet and 7-inch at 2,838 feet. Same company's No. 3 Hinkle, SW cor. NE Section 2-34-6w, topped the Colorado at 495 feet and is drilling at 1,925 feet, and its No. 1 Long, W NW SW Section 23-35-6w, is standing with the 7-inch cemented at 2,813 feet. Same company's No. 1 Morrison, NE SE SE Section 22-35-6w, is rigging up, and its No. 1 Schlag, C SW SW Section 26-35-6w, is drilling at 1,635 feet.

An indication of what the Cut Bank wells do on an average is shown by one company's figures on eight producers scattered through the field which are making a total of 435 bbls. per day on the pump. That is a fraction better than an average of 54 bbls. per well per day at capacity. Some of these wells are making 10 bbls. and others go as high as 70 to 80 bbls.

Carbon County

Ohio Oil Co.'s No. 14 Maddox, C NW NW Section 10-7s-21, Dry Creek, is spudding at 200 feet and preparing to run the 15½-inch. The company may drill six wells at Dry Creek this year, spacing them one to 40 acres.

Teton County

Ned Cheedle and others' No. 1 Balsinger, NE SE NW Section 20-27-5w, West Pondera district, is building derrick.

Stillwater County

Continental Oil Co. is reported to have taken over the holdings of Purdy and Jones, comprising 30,000 acres, on the

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Dean-Nye anticline in 5s-16 and 17e and will drill a test this summer. The block was formed 14 years ago and two wells have been drilled. One by Matlock & Co. in the NE cor. Section 15-5s-16e, and abandoned in the Colorado shale at 1,800 feet. Empire State Oil Co.'s No. 1, NW NW SE Section 32-4s-16, was lost at 2,750 feet after having a show of oil in the Lakota at 2,675 feet.

Toole County

Bruce P. Radigan, state oil and gas inspector, has resigned to re-enter the oil business and has acquired from Leonard C. Smith and others 240 acres in W half and SE Section 17-33-2e, in the Devon district, including No. 1 McDonough, NW cor. Section 17, which is drilling at 300 feet. National machine is being moved in for No. 2 McDonough, NW SE of Section 17.

Canadian Fields

(Continued from Page 71)

terests headed by E. H. Cunningham-Craig are preparing to go ahead with their proposed test on the adjacent Quaich structure, though location has not been announced.

In the old Oil City Field, Waterton Lakes Park, Oil City Royalties' No. 1 Patrick, Section 30-1-30w4, is to resume from 1,584 feet.

Border Fields

In the Border areas of southern Alberta, it is reported Nordon Corp. is planning to drill for oil on the Del Bonita structure south of Magrath.

On the Twin River structure south of Lethbridge, Nordon Corp. and C. A. Roney's No. 2 Twin River, LSD 11, Section 2-2-20w4, is testing production from the Madison lime at 3,930 feet.

A test for artesian water drilled by J. R. Fortune of Bow Island on the Byard Smith farm west of Taber encountered a heavy gas flow at 780 feet.

Cotton Belt Operations

On the Fisher Creek structure west of Calgary, no further work will be done by Cotton Belt Mines, Ltd., on its No. 1 test in LSD 5, Section 21-21-4w5. The test was carried to 3,140 feet but discontinued work after a change in formation at 2,680 feet was definitely identified as a faulting from the Kootenay to the Belly River formation.

It is expected Superior Royalties' No. 1, LSD 4, Section 28-18-2w5, South Turner Valley, will get under way this season. The location is in the southwest corner of the section and a considerable distance south and west of production.

Lloydminster Gasser

In western Saskatchewan, Lloydminster Gas Co.'s No. 1, LSD 6, Section 11-50-28w3, has been deepened into the sand, increasing the gas flow to 15,000,000 feet or more. At last reports the well showed 670 pounds closed pressure. Production comes from a sand around 1,800 feet.

Ontario Drilling

In the Dawn Field, Lambton County, Ontario, Union Gas Co.'s No. 73, NW Lot 25, Concession 2, Dawn Township, was dry below 2,100 feet. Union's No. 74, Lot 24, Concession 8, had a flow around 250,000 feet a day.

In Raleigh Township, Kent County, C. H. Shell Oil & Gas Co.'s No. 1, in Concession 13, south of Merlin, is reported making about 350,000 feet of gas, following a shot. Drilled last fall by the Southern Ontario Gas Co., it showed considerable oil at first, but this appears to have been a pocket.

In Norfolk County, Prairie Oil & Gas Co. some weeks ago got a flow of 162,000 feet a day in the Clinton sand. No. 2 is being deepened. No. 3 is drilling around 300 feet.

In Norfolk County, Erie Gas, Ltd., of Toronto, is to drill two tests for gas near Port Dover. No. 1 is drilling.

The Rockton Oil & Gas Syndicate has been organized to drill near Rockton, Ontario, where some surface indications of oil have been discovered. The syndicate, in which Earl A. Koyden of Sarnia, Harry W. Smith of Petrolia, and James Weatherstone of Troy, are interested, has 8,000 acres under lease. Preparations are being made to drill a deep test to around 2,000 feet, and a number of shallow holes.

Olga Operations

Olga Oil & Gas Co. of Toronto of which Hugh J. Plaxton is president has acquired from Decatur Gas Co. a 51 per cent interest in some 110,000 acres of leases in Indiana. The acreage is in Shelby, Decatur, Jennings, Rush and Bartholemew Counties. The Olga company will have management of the development through a subsidiary. On the leases are gas wells with an estimated aggregate open flow of 12,000,000 feet a day. H. R. Davis of Buffalo has been retained as consulting engineer.

In southeastern Alberta, south of Medicine Hat, a contract is being arranged for drilling on acreage of Imperial Oil, Ltd., on the Comrey structure.

Duvernay Test

On the Duvernay structure north of Edmonton, Frontier Development Co.'s No. 1 Brosseau, LSD 8, Section 36-55-12w4, is below 1,073 feet after encountering a good flow of dry gas at 960 feet.

Central West Fields

(Continued from Page 68)

In Lorain County the Ohio Fuel Gas Co. is drilling No. 1-5,803 on the Arthur Carpenter farm, Lot 85, Eaton Township.

In Holmes County East Ohio Gas Co.'s No. 7 on the S. H. Sterling farm, Lot 27, Hardy Township, produced 65 bbls. initial at 3,500 feet. Kenova Oil & Gas Co.'s No. 3 on the Mary A. Beeler farm, Lot 20, same township, produced 5 bbls. initial at 3,638 feet.

In Coshocton County, Preston Oil Co.'s No. 3-1,542 on the A. Van Winkle farm, Section 13, Perry Township, is drilling. Murphy Brothers have a rig for No. 4 Ward Little farm, Section 17, same township. In Newcastle Township, Preston Oil Co. has a rig for No. 3-1,546 feet. Ohio Fuel Gas has a rig in for No. 3-5,809 on the R. H. Giffin farm, same three-quarter section.

In Licking County, McClay Brothers have a rig on the W. R. Bourne farm, Section 1, Fallsburg Township, and the Upham Gas Co. has a rig for No. 3 on the Charles Babcock farm, same township. Charles Vaughn has a location staked for No. 9 on the Dora Dustheimer farm, Section 2, Franklin Township.

In Muskingum County, Pure Oil Co.'s No. 1 on the P. A. Donaldson farm, Section 7, Jackson Township, produced 48 bbls. initial. In Wayne Township, Atha Oil & Gas Co.'s No. 1 Lyman H. Osborne farm, Section 2, Wayne Township, was a dry hole at 3,996 feet.

In Athens County, Ohio Fuel Gas Co.'s No. 8-3,251 on the Black Diamond Coal Co.'s property, Section 23, Berne Township, is a gas well at 1,047 feet.

In Tuscarawas County, Hopewell Oil & Gas Co. is drilling No. 5 on the Stewart Asher farm, Lot 20, Washington Township.

In Stark County, Hoover Development Co.'s No. 3 fee farm, Section 18, is a gas well at 2,569 feet. Cunningham Gas Co. is drilling No. 2 F. and A. Willaman farm, Section 17, same township. East Ohio Gas Co. has a rig for No. 2 Hoover Development farm, Section 9, same township, and Brendel Producing Co. has a rig on the Eli and John Graber farm, Section 14, Plain Township.

In Guernsey County, Ferguson & McCullough's No. 2 Thomas Stewart farm, Section 21, Willis Township, is a gas well at 1,470 feet. No. 3, same farm, also is drilling. Ferguson & McCullough's No. 2 Fred R. Foraker farm, same township, is a gas well at 1,470 feet. O. & W. Gas Co.'s No. 1 on the Belle Peters farm, Section 20, same township, is a gas well at 1,505 feet. Ohio Fuel Gas Co.'s No. 3-5,799 on the John Johnson farm, Section 21, same township, is a gas well at 1,376 feet, and No. 4-5,910 is starting operations. C. C. Wharton is drilling No. 2 R. and E. Frame and others' farm, Section 1, same township.

In Vinton County, the Kachelmacher estate's No. 4 on the Lafayette Eggleston farm, in Brown Township, is a gas well.

In Knox County, Upham Gas Co. has a rig on the Brook Ranson farm, Lot 38, Monroe Township.

In Gallia County, H. W. Bowers' test on the B. and C. Mink farm, in Section 28, Addison Township, is dry at 330 feet.

KENTUCKY

In the Greenville area of Henderson County, Kentucky, Mayer Oil Co.'s No. 2 on the R. O. Kennedy farm, was treated with acid and was a 50-bbl. initial producer.

In Ohio County, Stewart Weir and others' No. 1 Dick Wells farm, produced 25 bbls. Snowden-McSweeney Co.'s No. 1 Kate Roberts farm, is a gas well, and M. G. and Grace Carpenter's No. 8 Ida Kelley farm, produced 5 bbls. initial. No. 9 is drilling on the same farm. Stewart Weir and others are starting No. 2 Dick Wells farm and Snowden-McSweeney Co. is starting No. 2 Kate Roberts farm, in Ohio County.

Ben Ruble is drilling No. 1 on the G. M. Welch farm, in the Mount Aril Pool, in Allen County.

No completions were reported from the Indiana and Illinois Fields for the week.

CARBON BLACK PROJECT

CRAIGMYLE, Alberta, May 19.—The Pioneer Carbon Black Co. is planning to have its new carbon black plant on the C. R. Echlin farm near Craigmyle in operation some time in July. Officers are: President, John Sherman; vice president, Frank Holdsworth; secretary-treasurer, Russell Johnson; directors, C. Ross Echlin, R. C. Burns, H. A. Blair, E. P. Ward, Harold Millican.

The plant will operate on the channel process and will utilize shallow gas production developed on the Echlin farm. From wells drilled 350 to 475 feet flows of between 65,000 and 90,000 feet a day have been secured; and while the plant is under construction additional wells will be drilled. Carbon black production will be sold primarily for use in the paint, ink and rubber trades in Canada, for which purposes some 15,000,000 pounds are now imported annually; while steps are also being taken to market the product in Great Britain and Australia.

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TECHNICAL QUESTIONS ANSWERED

By Charles K. Francis, Ph. D., Technical Editor

This department of The Oil and Gas Journal is devoted to the manufacturing branches of the oil industry.

Those connected with the refining of crude petroleum, the manufacture of natural gasoline and closely allied industries are invited to submit their problems to Dr. C. K. Francis, technical editor. The department was created for the purpose of aiding managers, superintendents, engineers, chemists and all those engaged in the various phases of plant operation; also those connected with marketing and utilization of petroleum products.

Questions should be submitted in as much detail as possible.

Inquiries must be signed but only the given initials will be printed. The source of the question is considered to be confidential

Questions requiring a discussion of patents, the use of intricate formulas, extended computations, or cost estimates cannot be considered.

When the matter is of general interest the reply will be published within a reasonable time.

Chemicals Used in Petroleum Refining—Fuller's Earth

This discussion of fuller's earth is a part of a series of short articles about the chemicals used in petroleum refining. Fuller's earth is not classified as a chemical but its importance as a filtering medium causes it to be included. The first of these articles appeared on this page in the issue of March 15, 1934.—Editor.

Fuller's earth, so called because of its early use for fulling, the process used for the removal of grease from wool, is a clay distinguished for its power to remove color from the oils, including those produced from plants, animals, fish, and petroleum. The authorities do not agree as to just what kind of action takes place when fuller's earth discolorizes an oil. Some believe it is due to chemical action and others explain the process as a physical one. The bleaching action seems to be related to the mechanical and physical condition of the earth, together with some relation between the percentage of water and silica as possibly responsible for the bleaching. At any rate, fuller's earth is not subject to grading by chemical analysis, but is always examined by means of an actual test. Two earths may be very similar in composition, but one will have the power to remove or reduce the color of an oil, while the other may produce but little color reduction or be entirely lacking in this respect.

Fuller's earth is a natural deposit found at or near the surface in many parts of the world. The United States is the largest producer. Although deposits of large size are found in at least half of the states, the deposits in Arizona, Colorado, Florida, Georgia, Illinois, Massachusetts, Nevada and Texas are the only ones from which the earth is commrecially distributed. The most important deposits are those of Florida and Georgia. The reason for this condition is that the material is cheap and the market well supplied from deposits that are favorably located.

The bleaching, or color removing, power of fuller's earth is determined by trial. One method is to use a definite weight, 500 to 1,000 grams, of the earth, place it in a percolator and then run an oil through it to a selected color. A similar test is made with a fuller's earth of known power. The volume of oil having the desired color per weight of earth is the color efficiency number.

Fuller's earth is burned, cleaned, each time after it is used; the loss on each burning being by best practice about 5 per cent. There are two types of furnaces for burning. In one the earth comes in direct contact with the flame and in the other the heating is indirect. In the open type furnace a direct flame of 700° F. is considered to be the limit for ordinary fuller's earth. Very good results have been obtained in the closed furnaces when operating close to 1,000° F.

When fuller's earth is heated to very high temperatures, and especially when the particles are brought in direct contact with the flame, there is danger of fusion, with the result that a large portion will be glazed and therefore rendered inactive. Some fuller's earth has been known to contain enough lime carbonate to cause trouble in the higher temperatures; the carbonate being reduced to the oxide, which helps to lower the melting point of the clay.

The temperatures for reburning must vary with the kind of oil, the number of times it has been burned, and the extent to which it may have been mixed with new earth.

At this time there are three grades of fuller's earth used for filtering petroleum oils. These are the 30-60, the 40-60, the 60-90 and the 200 fine. These grades refer to the fineness as determined by means of standard sieves. An earth passing a 30 sieve (30 meshes per lineal inch) and retained on a 60 sieve is known as 30-60 clay or earth.

Properties—The only distinguishing property of fuller's earth is the removal of color from oils. Various samples show a range in specific gravity, although it is usually more porous and lighter than other clays. Georgia and Florida earths weigh 30 to 36 pounds to the cubic foot; a sample from Massachusetts weighed 78 pounds, a California sample 60, and an English specimen 75 pounds. Most specimens are nonplastic and some disintegrate in water. The color may vary, but is usually light brown, gray or cream color and sometimes nearly white. A peculiar characteristic is the so-called acidity. A moistened fuller's earth will show an acid reaction with litmus paper and absorb alkali as indicated by phenolphtholein. This is not true acidity since the earth is acid-free.

Price—Fuller's earth is usually shipped in bags containing 80, 100, 200 or 230 pounds, but may be obtained in lumps. The price of the graded earth varies from $16 to $20 a ton delivered. The lumps sell for about $5 a ton at the mines.

Australian Oil Refineries Are Not of Large Capacity

We would like to know the extent of refinery operations in Australia including names of the large operators.—W. H. C.

There are three petroleum refineries in Australia, these are: Commonwealth Oil Refineries, the plant being located at Kroroit Creek, near Melbourne; the Shell Co. of Australia, has a refinery at Clyde; the Newport oil Refinery is at Newport.

The total capacity of these refineries appears to be approximately 8,000 bbls. a day, if the total quantity of imported crude, 3,000,000 bbls., is refined at these plants.

The retail price of gasoline is high in Australian cities, usually ranging in the neighborhood of 50 cents a gallon, recently the price has been about 34 cents, and as a consequence substitutes are used for motor fuel purposes. Some alcohol has been blended with gasoline; also, coal and shale have been considered as a source of motor fuel.

Recent investigations suggest that gasoline can be produced in Australia from coal by the hydrogenation process for about 18 cents a gallon, and from shale at 36 cents. These figures were arrived at after allowing for profit, depreciation of plant and interest on capital. The Tasmanian Automobile Trade Journal states that the Commonwealth Government, impressed by these figures, is now more interested in obtaining oil from coal and shale than in the manufacture of power alcohol. The Associated Chambers of Manufacturers and various other congresses held recently, have, however, passed resolutions urging the government to investigate the possibilities of manufacturing power alcohol. The government has pointed out that in comparison with the cheap extraction of gasoline by the hydrogenation process, the cost of manufacture of power alcohol is stated to be equal to 44 cents a gallon at Brisbane.

Compression Ratio Defines the Extremes in Fuel Volume

What is the exact technical definition that is commonly used for compression ratio of common engines?—D. V.

The compression ratio of an internal combustion engine is a term relating to the space in the cylinder when the piston is at the two extremes of the stroke. The mixture of fuel vapor, or gas, and air is drawn into the cylinder on the down stroke, the charge being completed when the piston reaches its maximum distance, lowest position, and at this stage the cylinder contains its capacity, say a volume of 5x cubic inches. The piston moves upward to compress this volume into the space at the head of the cylinder to be exploded; this is the minimum volume, measuring x cubic inches. Under this example, the mixture would be compressed to one-fifth of the original volume and consequently the pressure would be increased five times. The brief statement of this condition is to say that the compression ratio is 5 to 1.

The determination of the compression ratio involves, as suggested in the above, the determination of the capacity of the cylinder under two conditions. This is theoretically equivalent to the volume drawn into the cylinder at each up stroke, and the volume at the end of the stroke under normal pressure and temperature.

When the piston of the cylinder is at the top on dead center the volume is at the minimum and when it is at the bottom on dead center is at the maximum. The ratio between these volumes is the compression ratio. The formula below may be used.

v = piston displacement.
V_1 = total volume of cylinder.
V_2 = volume compression space.
R = compression ratio.

$$V_1 = v + V_2$$

$$R = \frac{V_1}{V_2}$$

$$R = \frac{v + V_2}{V_2} = \frac{v}{V_2} + 1$$

$$V_2 = \frac{v}{R - 1}$$

Melting Point of Grease Found by Conventional Methods

Could you give me information as to the complete procedure for determining the melting point of greases? I want the standard or generally recognized procedure.—A. F. R.

There is no standard method for testing greases for melting point. The tentative standard method for penetration of greases, as arranged by the American Society for Testing Materials, D217-33T., A.S.T.M. Standards on Petroleum Products, page 193, is followed for determining consistency.

Klemgard, in his book, Lubricating Greases, mentions, pages 62-65, several methods that may be used for finding the melting point of greases. The method as described by Gillette, Ind. Eng. Chem., 1, 351, 1909, is suggested. The following details are as shown by Klemgard.

The method as outlined by Gillette makes use of an open capillary glass tube, 4 mm. inside diameter and about 8 cm. long, graduated at 1 cm. and 5 cm. from one end. In making this test the tube is inserted in the grease, and a plug of grease is drawn up 1 cm. into the tube, using suction if necessary to draw up this plug. The tube is then attached, with a rubber band, to a thermometer so as to bring the grease plug beside the bulb. The thermometer and tube are then immersed in a beaker of water, so as to bring the bottom of the tube 5 cm. below the surface of the water. The water is then heated at the rate of 3° per minute, and when the melting point is reached, the plug, which is under pressure of 5 cm. head of water, flies up the tube. Of course the test is dependent on a number of factors and is of value chiefly as an indicator. The nature and amount of soap, oil and water in the grease as well as the process used in manufacturing the grease, affect the melting point.

The method above outlined is a modification of the one so frequently used for determining the melting point of organic compounds, where small tubes are drawn out in a hot flame from glass tubing or a test tube, cut into convenient lengths and then sealed at one end. A small particle of the material is placed in one of these tubes which is attached to the side of a thermometer, as described by Gillette, with the open end of the tube above the surface of the bath. The procedure for heating, etc., is the same. The temperature shown when the material flows is the melting point.

NATURAL GAS DEVELOPMENTS

Lone Star Rate Arguments Are Called in State Court

AUSTIN, Tex., May 21.—Arguments on legal issues in the Lone Star Gas Co.'s rate case, scheduled to have started Thursday morning, were postponed until Wednesday by District Judge Charles A. Wheeler when the case was called.

The suit was brought by Attorney General James V. Allred on behalf the gas utilities division of the Railroad Commission to compel the Lone Star company to comply with a 20 per cent reduction ordered by the commission in gate rates of more than 225 North Texas cities and towns. Trial was likely to be set for June, after arguments on demurrers and legal issues are disposed of. Enforcement of the order was restrained by a three-judge Federal Court at Houston in November; but under a procedure worked out by Attorney General Allred, the case was brought back within jurisdiction of state courts.

Under the law just approved by President Roosevelt, utilities no longer may appeal to Federal Courts from state rate orders, and will have access only to state courts.

Karl F. Griffith, general counsel for the Lone Star company, is to conduct the company's defense, assisted by Roy C. Coffey of Dallas, O. K. Shannon of Fort Worth, and Judge Ben H. Powell of Austin.

Isabella Company May Acquire Pure Gas Rights

MUSKEGON, Mich., May 21. — Isabella Oil Development Co. of Mount Pleasant has negotiated a tentative contract for the purchase of all natural gas rights of the Pure Oil Co. in the north half of Broomfield and Sherman Townships. The contract, which must be given final approval by the stockholders of the Mount Pleasant company, covers about 10,000 acres under lease in the two townships and provides for on option on 25,000 more acres of potential gas acreage. It also includes eight natural gas wells.

The Isabella company is pianning an extensive program to cost about $250,000 during the next six months, including the drilling of 25 wells before winter.

There are now 25 gas wells in Broomfield area from which the Consumers Power Co. is piping gas to Saginaw and Bay City. Proved acreage is estimated at 7,500 acres and reserves at about 22,000,000,000 feet. In 1933 Broomfield Township produced 470,350,000 feet of gas.

13,000,000-FOOT GASSER

BRADFORD, Pa., May 21. — United Producing Corp. brought in a 13,000,000-foot producer on its Phelps lease in Hebron Township, Potter County. This well is an offset to a well drilled on the same farm, but another lease, by North Branch Development Corp. United has announced two new locations, the E. C. Willsey, Hebron, and the Catherine Currier, Genesee, both in Potter County.

Mutual Natural Gas resumed drilling on the Presbyterian Church lot, Farmington, Tioga County, after a two-year shutdown during which the lease has been in litigation.

CANADIAN WESTERN DIRECTORS

CALGARY, Alberta, May 19.—At the annual meeting of the Canadian Western Natural Gas, Light, Heat & Power Co., the following officers were elected: President and managing director, H. R. Milner, K.C.; vice president, E. W. Bowness; superintendent and engineer, P. D. Mellon; secretary-treasurer, H. S. Watts; directors, P. M. Chandler, A. G. Baalim, F. W. Seymour, Julian Garrett, S. E. Slipper; superintendent of accounting, F. A. Smith. P. M. Chandler of New York takes the place of H. S. Tims on the directorate.

Michigan Commissioners May Suspend Line Permit

MUSKEGON, Mich., May 21.—An order to show cause why their certificate of convenience and necessity to lay a natural gas pipe line between the Mecosta Field and Muskegon should not be suspended was issued by the Michigan Public Utilities Commission against the American Michigan Pipe Line Co. of Muskegon. The company's permit to lay the line, a 55-mile structure, was suspended because of the company's failure to begin operations and to file a schedule of rates or the estimate of gas to be consumed.

Chairman James B. Balch, head of the utilities commission, overruled the contention of company officials they needed only to begin construction to hold their permit. He insisted the law required the commission know the proposed rate structure and the estimated gas required to serve Muskegon.

The company obtained a permit to lay the line last February after negotiating with Taggart Brothers, Inc., of Big Rapids, for the purchase of up to 12,000,000,000 feet of reserves. The starting of construction has been delayed awaiting assurance of this quantity of reserves believed possible by the completion of another gas well as large as the Taggart Brothers' No. 1 gasser, with a daily capacity of 4,000,000 feet.

Reduced Kansas Rates Affect Hundred Towns

TOKEPA, Kans., May 19. — Several Kansas utilities companies have filed reduced rates with the Kansas Corporation Commission, which has approved the new schedules affecting rates in more than 100 cities.

The Kansas Pipe Line Co., Peoples Gas Co. and Public Service Co. of Kansas filed a new house heating schedule for all of the cities and towns served by the companies except six of those served by the Kansas Power & Light Co. The new rate is a reduction of 5 cents per 1,000 feet for natural gas consumed each month in excess of 20,000 feet and up to 50,000 feet. For gas in excess of 50,000 feet a month the reduction is 10 cents per 1,000 feet. The rate will be 40 cents per 1,000 feet of gas between 20,000 and 50,000 feet a month and 30 cents for gas above 50,000 feet.

The four companies serve 108 towns and cities and the only points where the new rate does not apply are Atchison, Bison, Garfield, Olmitz, Otis and Victoria, where there are other rate schedules.

NATURAL GAS NEAR BOMBAY

Huge quantities of natural gas containing traces of oil have been found in Bombay districts and geological experts report that there is every indication that these gas fields can be opened up for commercial exploitation. According to the London Chamber of Commerce Journal, Sultan Chihoy, a Bombay business man, has obtained prospecting licenses for areas in the Ahmedabad and Broach districts and considers it will be possible to develop the natural gas resources of the area for local industrial utilization.

Federal Act Prohibits Injunction on Rates

WASHINGTON, D. C., May 21.—President Roosevelt has signed the Johnson bill, which prohibits utility companies from going into Federal courts to obtain injunctions against enforcement of decisions of state regulatory bodies.

The bill was sponsored by Sen. Hiram Johnson of California, who has contended that Federal courts have been used by the utility companies to nullify the regulatory work of state commissions and boards.

Storage in Bow Island Is Unqualified Success

CALGARY, Alberta, May 19.—Following four years of experiment involving heavy expenditure, announcement has been made by officials of the Canadian Western Natural Gas, Light, Heat & Power Co. that the experiment of repressuring the depleted sands of the Bow Island Field with surplus gas from Turner Valley has proved an unqualified success. Since August, 1930, when gas from the Royalite wells in Turner Valley was first transported to the Bow Island Field and forced under pressure into the exhausted wells, a total of 5,500,000 feet of gas has been stored.

The Bow Island Field at its peak had an estimated gas reserve of 46,000,000,000 feet. A total of 38,000,000,000 feet was withdrawn for the use of Calgary and other Southern Alberta communities, leaving theoretically a reserve of about 8,000,000,000 feet. This reserve could not be fully utilized as there was not enough pressure. At present all the gas put into the sands under the repressuring scheme could be withdrawn if required. The rock pressure has increased from 248 pounds in 1930 to 450 pounds.

Gas company officials state that repressuring is being continued at a rate of 4,500,000 feet a day and it is planned to continue till a very large gas reserve is built up.

The repressuring of the Bow Island Field was the first undertaking of its kind in Canada. The original Bow Island gas was a dry gas. The Turner Valley product as it comes from the wells is a wet gas, but before being stored practically all the naphtha is extracted by separators and gasoline absorption process.

NEW ALBERTA GAS FIELD

EDMONTON, Alberta, May 19.—According to officials of the petroleum and natural gas branch of the Alberta lands and mines department, a flow of dry gas found presumably in a continuation of the sand now operated in the Viking Field east of Edmonton, has been encountered by the Frontier Development Co. in its well drilled near Brosseau on the Saskatchewan River, northeast of Vegreville. Information indicates a good type of dry gas.

William Calder, director of the division, states that since the well was drilled with a rotary drill, it has been impossible to accurately state just what the flow will be. It is presumed to be at 1,340 to 1,360 feet below the surface. The gas showed only when the level of 1,463 feet was reached.

HARLINGEN HEARING

AUSTIN, Tex., May 19.—The Texas Railroad Commission has called a gas rate hearing in Harlingen, May 28, to consider rates charged by the Rio Grande Valley Gas Co. The company serves 15 leading towns in the lower valley.

The gas utilities commission recently evacuated the company's lines in an effort to reach a gate rate, according to Supervisor Olin Culberson, who proposed the company charge 25 cents per 1,000 feet as its uniform gate rate throughout the system.

Texas Gas Utilities May Undergo Reorganization

A plan for reorganization of the Texas Gas Utilities Co. has been promulgated, providing for ultimate acquisition by the Texas Gas Service Co., organized recently in West Virginia, of property and business of the former company through a receiver's or a foreclosure sale.

As the first step in the program, the new company would acquire the $1,000,000 of 7 per cent notes due in 1940 and $171,236 of other unsecured debts of Texas Gas Utilities from the Commonwealth Gas Corp. and its subsidiaries, and would issue in payment for them 28,000 of its own common shares out of 60,000 authorized. For each $1,000 of first-mortgage 6 per cent bonds due in 1945 of the old company, the new company would issue an equal amount of 6 per cent noncumulative income bonds and 10 shares of common stock. If all the first mortgage bonds were exchanged, their holders would own the majority of the stock.

The Pennsylvania Company for Insurances on Lives and Granting Annuities is depositary under the plan. The time for deposits will end on June 1 unless extended.

Sales on Pacific Coast Show Business Upturn

LOS ANGELES, Calif., May 19.—Commercial and industrial uses of gas are on a decided uptrend. This became apparent with the issuance of statistics allowing comparison with a year ago.

The Pacific Coast Gas Association is authority for the information that total industrial use was up 37.1 per cent in the first quarter, compared with the first quarter of 1933.

The gas association data covers California, Arizona, Nevada, Oregon and Washington, and the Canadian province, British Columbia. It shows "business gas" sales of 17,254,123,000 feet in the 1934 quarter, compared with 12,586,908,000 in the 1933 quarter.

Total gas sold on the coast was 39,528,356,000, bringing $21,485,249. This compared with 38,311,117,000 feet in the 1933 quarter, which brought the companies $23,796,269.

California accounted for 37,675,390,000 and $19,452,144 of the revenue. The state showed a gain of 38.8 per cent in use of industrial gas, with a 16.3 per cent rise in income from this source.

NEW CLARENDON COMPANY

CLARENDON, Tex., May 21.—Work on a new natural gas distribution system for Clarendon is expected to begin in 90 days, with the system to be completed in six months and ready to serve customers.

The city commission, with Finance Commissioner Tom Connally as spokesman, made this announcement, following agreement with the Smith Brothers Gas Co. of McLean, on a franchise granted them by the city. This is the second franchise to be granted, this city now being served by the City Gas Co.

FIELD PROBLEMS FROM READERS

Edited by Thomas F. Smiley

This department is conducted in order that men connected with the drilling, producing and transporting branches of the petroleum industry may obtain aid in solving problems that confront them in their work. Readers are invited to send questions freely. These questions will be placed in the hands of persons capable of answering them authoritatively, and the answers, based on the best available information, will be published.

Each question should give as much detail as possible, especially if it involves depth of sands, types of sands and operations on adjoining or nearby properties. The source of questions will be considered confidential, and only the initials of the sender will be published. Questions involving patented processes, intricate formulas or estimates of cost cannot be answered. If an immediate answer is important, one will be given by mail when the writer requests it.

In this connection, The Oil and Gas Journal will be glad to publish articles from field men who have devised new methods or improved old ones.

Placing a Central Pumping Power Plant Needs Engineer's Skill

We are using a central pumping power plant which some of the oil men here tell us is not placed to the best advantage. Will you be kind enough to tell me just what things should be figured on in choosing the site for a power plant?—T. R. A.

There are numerous considerations to be given to selection of site for a central power plant and the final decision is influenced largely by the type of plant finally decided upon. Manufacturers of central pumping plants of all types maintain engineering departments specializing in the installation of this type of equipment and it probably would be to your advantage to consult with them.

It is possible to give you many references to articles that have been published on central powers and for general reading they would be interesting, but if you attempted to follow them in locating a plant upon your lease the chances are that you would not get it right and when you actually bought the equipment the manufacturer would have to do all the work over again.

Central powers are different from other types of pumping equipment in that several wells are handled from one power unit. To get the best results the wells should be "balanced," that is, the rods in one well should be descending while the rods in an opposing well are rising. In this way the descending load partly compensates for the lifted load and if the balance is properly made and maintained much less actual power is used to pump the whole lease than under unbalanced conditions.

Manufacturers now make powers of various types for every condition of pumping for wells drilled to depths of 5,000 feet. Many of these outfits are mounted upon especially designed foundations and are so built that they do not require houses over them, but remain in the open at all times. The power unit is housed, but that calls for a much smaller building than formerly needed to cover power and engine.

It is suggested that you submit your problem to manufacturers of central powers and for information as to who make this kind of equipment you are referred to the buyer's guide in the June 22, 1933, issue of The Oil and Gas Journal.

Kentucky Has Law Concerning Plugging of Abandoned Wells

I read in an issue of The Oil and Gas Journal the law of Ohio prescribing the method that must be followed in plugging abandoned wells in that state. I would like to know whether the State of Kentucky has a similar law. If it has, but is different from the Ohio law, could you tell me in what respect it is different?—F. E. N.

The law of Kentucky relating to the plugging of abandoned wells is as follows:

"That whenever any well shall have been put down for the purpose of drilling or exploring for oil, gas or salt water, upon abandoning or ceasing to operate the same, the person or corporation in possession as aforesaid shall, for the purpose of excluding all fresh water from the gas-bearing rock, and before drawing the casing, fill up the well with sand or rock sediment to a depth of at least 20 feet above the rock which holds the oil, gas or salt water, and drive a round, seasoned wooden plug, at least 3 feet in length, equal in diameter to the diameter of the well below the casing, to a point at least 5 feet below the bottom of the casing; and immediately after drawing the casing, shall drive a round, seasoned wooden plug, at a point just below where the lower end of the casing rests, which plug shall be at least 3 feet in length, tapering in form, and of the same diameter, at the distance of 18 inches from the smaller end, as the diameter of the hole below the point at which it is to be driven. After the plug has been properly driven there shall be filled on top of the same, sand or rock sediment to the depth of at least 5 feet."

Drilling Into Salt Water Crevice Makes Problem for Neighbor

An operator putting down a well on a lease next to ours drilled into a salt water crevice, with the result that now we are getting water in our wells, which adds seriously to the cost of production. Is there anything we can do about it either in a law proceeding against the neighboring operator or by shutting off the water in some way?—L. A. N.

There are a number of ways to shut off and control salt water that has entered a producing formation and the best method to be employed depends largely upon the character of the formation and the position and volume of water to be controlled.

If the water in question is bottom or edge water, that is water found in the bottom or at the edge of the formation from which the oil is being produced, it is quite obvious that if the entire formation is shut off by any method the oil will be prevented from entering the well.

For the repair of wells making bottom water, that is water that lies at the bottom portion of the stratum, lead wool, packers and cement may be used to effect a shutoff. This job can be done by a good lease man or by a commercial cementing company. Specialists in this line of work are usually cheapest in the long run and it may pay you to call upon a cementing company familiar with conditions in your field.

If edge water is causing the trouble it may be possible that nothing can be done, because if edge water is moving into the formation from downdip it should be driving the oil ahead of it and clearing the stratum of all recoverable production. The well can be plugged off and the water confined to the particular stratum in which it occurs, but engineers consulted about your problem offer no means of entirely controlling movement of the water through other portions of the stratum. Eventually it should occuppy the space formerly filled with oil and gas.

There are certain requirements concerning plugging of wells showing salt water that the various state laws specify and it will depend upon the statutes in your state as to what legal recourse you have in compelling your neighbor to control water in his well. Even if you did compel him to plug his well this does not assure you that the water will not continue to move toward your well as you withdraw oil and gas. Producing the well removes fluid and gas from the formation and nature abhors a void in any portion of this earth.

The best policy according to modern production methods is to control water movements and not waste time and money trying to stop the inevitable.

Why Was It Called That?

GRAVITY

"Gravity," as the term is employed in the petroleum industry, is expressed in A.P.I. degrees, which are determined through the use of a hydrometer. It may be converted into specific gravity, which is the ratio of any volume of one substance to the weight of the same volume of another adopted as a standard. Water is used as the standard for liquids and solids, and air usually is taken as the standard for gases though hydrogen is taken as the standard in some cases. When an oil is of 33 gravity as shown by the hydrometer, its specific gravity is 0.8602. The word "gravity" is derived from the Latin "gravitas," weight.

Method of Detecting Oil Deposit Direct May Come Eventually

In all your discussions of geological and geophysical methods of prospecting for oil you say that the geologist and the geophysicist do not pretend to say where the oil inself is, but only say where structures favorable for the accumulation of oil are to be found underground. I have found a reference to what is called the "electrochemical" method of prospecting, and it is said to find the oil itself. This seems to be out of line with statements you have made. Can you tell me what this electrochemical method of oil-finding is?—L. F. S.

At no time has this department assumed to say that scientific research and experiment never would find a way of detecting actual deposits of oil. As a matter of fact the so-called "resistivity methods" seem to promise the possibility of detecting oil and gas directly. Up to the present time, however, it is safe to say that no geologist or geophysicist of recognized standing ever has claimed ability to do more than find structures favorable for oil deposits. The ultimate object of geophysical prospecting should be the direct discovery of oil and gas, and it is not at all unlikely that this object will be realized.

The electrochemical method, an invention of Dr. Max Muller, of Jena, is based on the detection of differences in the chemical composition of strata investigated. Students of this method express hope that it eventually will prove capable of revealing the presence of underground oil and gas. The following description of the method by Oscar Weiss is given in response to your request. It is of necessity extremely technical.

"The electrochemical method is based on the detection of variations in the polarization current set up by an input current at the surface of two media of different chemical character.

"It has been already proved that by applying an input current, a polarization current can be set up on the surface of ore bodies and metallic masses. These polarization currents continue for some time after the cessation of the exciting current and have been detected by tracing equipotential lines due to this polarization after the cessation of the input current. The method naturally has only permitted this final part of the polarization to be detected, while the largest part of the polarization current which flows simultaneously with the input current remained undetected.

"The electrolytes in the ground are mostly rich in negative ions of oxygen, SO_4, Cl, etc. If a metallic mass is in contact with such an electrolyte it emits positive ions charges itself negatively Equilibrium will occur, due to positive ions being held near the metallic surface by the attraction of the negative charge. If this equilibrium is disturbed by a current in the earth then the emission of metallic ions leave the metallic body in the zones of the egress of the current.

"In this new electro-chemical method the polarization current of the strata is separated from the input current and recorded photographically against time marks on a moving film. The separation of the two simultaneous currents is achieved so that not only is the full polarization current recorded but also its variations which characterize rocks of different chemical compositions."

PERSONAL PARAGRAPHS

HERMAN BESA MONTT, a director for the West India Oil Company, in Chile, accompanied by MRS. MONTT and his family, arrived in New York City last week.

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VICTOR PEYTRAL, former French Minister of Public Works, and a prominent figure in the French oil industry, left New York Saturday on the Paris of the French line for France.

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LUNDY A. CROWDER and CONDE BALDWIN, of the International Petroleum Company, Toronto, Canada, sailed from New York, Saturday, to South America on the Santa Inez of the Grace line.

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V. P. BRYANT, driller on British Dominion Oil & Development Corporation's No. 4 well in South Turner Valley, is in the Holy Cross Hospital at Calgary recovering from injuries sustained when he fell from the rig.

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ROBERT (BOB) COLE, formerly district manager for the Republic Supply Company at Wichita Falls, Tex., has joined the field forces of the Bradford Supply Company and will continue to work in the Wichita Falls district.

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J. F. BASHARA, independent operator, Houston, Tex., has left for a summer trip through Europe and a visit to his native country of Syria. He is motoring to New York, from where he will sail early in June on the Europa.

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C. C. STEWARD, of Whittier, Calif., has resigned as petroleum engineer for Consolidated Steel Corporation, Ltd., Los Angeles, to join Foster Wheeler Corporation in the New York office as refinery engineer. He was formerly with the Foster Wheeler Corporation.

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R. W. KEITH, field auditor for Continental Supply Company, Dallas, Tex., is covering West Texas on company business.

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RAYMOND REDDEN, of Houston, Tex., district representative for A. O. Smith Corporation, is in Milwaukee, Wis., attending a conference.

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SIR JOHN CADMAN, chairman of the Anglo-Persian Oil Company, has accepted an invitation to be president of the British Institute of Fuel for the year commencing October 17, next.

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J. A. NEATH, vice president, Humble Pipe Line Company, made an inspection tour through West Texas, attended the West Texas Chamber of Commerce convention in San Angelo, and thence to Tulsa.

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JOHN J. CARTER, grandson of the founder of the Carter Oil Company, and MISS BETH McCAFFERTY, daughter of the late C. E. McCAFFERTY, for many years with the Emery oil interests, were married in Brewster, N. Y., on May 13. They will reside in New York.

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EDWARD G. SEUBERT, president of Standard Oil Company (Indiana), has resigned as general chairman of the oil code committee for Region 3 and accepted membership on the Planning and Coordination Committee administering the code. E. J. BULLOCK, vice president of Standard of Indiana, has been appointed by SECRETARY OF THE INTERIOR ICKES to Mr. Seubert's position on the regional committee.

WALTER S. HALLANAN, of Charleston, W. Va., was re-elected president of the Plymouth Oil Company at the annual meeting of stockholders.

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STANLEY D. WATERS, who for the past eight years has been district manager for the Sun Oil Company at Rochester, N. Y., has been appointed manager of the New England marketing operations of the company with headquarters at Providence, R. I. He will be succeeded at Rochester by WESLEY S. SAWYER.

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E. O. MATTOCKS, research engineer of the American Gas Association testing laboratory, will give a talk before the Cornell section of the American Society of Mechanical Engineers at Cornell University on May 18. His subject will be "Temperature and Its Measurement." Mr. Mattocks is actively engaged in research in high temperature gas combustion for the Committee on Industrial Gas Research.

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CHARLES E. DOVE, manager of southern gas properties of the Central States Light & Power Company, Tulsa, has been transferred to Dubuque, Iowa, to manage the Interstate Power Company, Dubuque division, a subsidiary of the Utilities Power & Light Company. Mr. Dove was manager of the local properties and of the Central States Light & Power Company at Dubuque until three years ago. HARVEY C. ORTON, executive vice president of the Utilities Light & Power Company, in announcing the change, stated that R. H. GARRISON, whom Mr. Dove succeeds, will be transferred to the managership of the northern division of the Interstate Power Company, Albert Lea, Minn., to cover the territories of the Dakotas, Minnesota, and Nebraska, including natural gas pipe line subsidiaries.

FRANK KOPP, district manager for the Frick-Reid Supply Corporation, at Fort Worth, Tex., is spending most of his time in the Wichita Falls, Tex., district.

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D. B. GEIGER, scout for the Phillips Petroleum Company, Amarillo, Tex., has been given a two months' sick leave and will spend most of the time in his old home at Hebron, Ohio.

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E. C. KIRKER, of Charleston, W. Va., who has been absent from the Southwest for about eight years, is again in Shreveport, La., for an indefinite stay. Mr. Kirker is interested in wildcatting activities in that division.

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CAPT. FREDERIC W. HAIG, chief aviation officer of the Vacuum Oil Company, Ltd., in Australia, arrived in this country last week. Captain Haig is making a world tour of inspection of aviation developments and will spend some time in this country.

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W. W. LEWIS, formerly president of the Louisiana Supply Company, Sulphur, La., and for a number of years general manager of the Union Supply Company before its reorganization as the Louisiana Supply Company, has been named general purchasing agent of the Louisiana Supply Company, a position he formerly held.

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M. C. HOFFMAN, formerly division petroleum engineer for the Stanolind Oil & Gas Company, Fort Worth, Tex., has been transferred by the company to the Tulsa offices. D. H. SAFFORD succeeds him at Fort Worth, and G. H. CARD, petroleum engineer, formerly located in East Texas, has been moved into the Fort Worth division offices of the company.

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E. A. SATCHELL, production manager of the Iraq Petroleum Company, London, England, is making a visit to the Iraq oil fields.

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D. D. LEWIS, superintendent, and L. A. SUMMERS, assistant production foreman, Lago Petroleum Company, Maracaibo, Venezuela, were in Tulsa during the week.

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J. A. (JOCK) HARRIS, formerly sales and traffic manager of the Dixon Creek Oil & Refining Company, Amarillo, Tex., is now with the Pinto-Tex Oil Company, 753 Plymouth Building, Minneapolis, Minn., as sales manager.

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L. A. BOYD, superintendent, Signal Gasoline Company, at Texon, Tex., has been transferred to Calgary, Canada, to supervise reconstruction of a gasoline plant dismantled at Texon and moved to Calgary. F. B. HAVERFIELD succeeds Mr. Boyd at Texon.

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EDGAR D. KLINGER, formerly with the Cities Service Company, has accepted a temporary appointment as a geologist with the U. S. Geological Society to work on the subsurface stratigraphy of North Central Texas. Mr. Klinger's address is the Federal Building, Coleman, Tex.

• • •

D. M. CADDEL, superintendent of the Venezuela Gulf Oil Company, of Maracaibo, Venezuela, was in Tulsa during the week, as were C. D. ALWORTH, superintendent, Standard Oil Company of Venezuela, and RANSOM HOLLAND, petroleum engineer, Standard Oil Company of Venezuela.

DO YOU REMEMBER?

From The Oil and Gas Journal Files

25 Years Ago

May 26, 1909

W. H. Roeser, sells his Ethel Oil Co. holdings in the Glenn Pool to the Gypsy Oil Co. for $185,000.

John D. Rockefeller, Jr., heading a party of Standard Oil Co. officials and directors visits Tulsa. In the party were J. E. O'Neil, James Smith, James Kerr, H. C. Folger, E. E. Crocker, C. N. Payne, J. C. Donnell, Fred H. Hillman, George Jones, A. C. Bedford, John D. Archbold, and Allen T. Sole. It was Mr. Rockefeller's first visit to the Mid-Continent Field.

The Uncle Sam Oil Co.'s refinery in Tulsa, built two years ago, but never operated, is to be put into active service. It has a capacity of 600 bbls. per day.

20 Years Ago

May 28, 1914

John H. Galey, of Guffey & Galey, is visiting in Tulsa. At one time Guffey & Galey owned leases on all the acreage between the Glenn Pool and the Kansas line, a strip 60 miles north and south, and also owned 1,800,000 acres of leases in Kansas, later taken over by the Prairie Oil & Gas Co.

The Cushing Field has passed the 100,000-bbl. a day mark. It is producing 116,000 bbls. from the Bartlesville sand and 11,500 bbls. a day from upper sands. Oklahoma produces 251,000 bbls. per day and Kansas 6,800 bbls.

Judge James B. Diggs, general attorney for the Gulf Pipe Line Co. of Oklahoma, has returned to Tulsa from Minneapolis, where he argued the appeal of that company before the U. S. Circuit Court of Appeals, in the celebrated sand bar cases.

10 Years Ago

May 22, 1924

If all the Wilcox sand pools in Oklahoma were one pool, the pool would occupy only 7,680 acres, or one-third of a township.

Phillips Petroleum Co. has purchased the four gasoline plants of the National Gasoline Co. in the North Louisiana Field.

A. C. Bedford, president of the Standard Oil Co. of New Jersey, says: "The oil industry could not today liquidate all of the petroleum in storage (471,000,000 bbls.) at present prices and get out even on the investment."

FERDINAND HEINE, independent operator in Houston, Tex., has returned from a two months' trip to Pennsylvania.

* * *

A. C. HORNADY, geologist, has joined the geological department of the Phillips Petroleum Company in San Angelo, Tex.

* * *

KARL H. RUNKLE, manager of sales of oil field equipment for the General Electric Company, is visiting Tulsa and the Mid-Continent and Texas fields.

* * *

JACK MALSEED, marine superintendent of the Shell Oil Company at Los Angeles Harbor, has been elected to the board of directors of the Bilge Club, a marine organization composed of executives of shipping interests at Wilmington, Calif.

* * *

RALPH G. BOWMAN, director and assistant general sales manager of the General Petroleum Corporation, will leave the latter part of June for an extended trip through Europe and the Orient as his resignation submitted in January has been accepted.

* * *

A. C. McLAUGHLIN, secretary of the refiners committee which has been setting up the new gasoline refining and marketing plan for California, has left Los Angeles for Washington, D. C., to confer with ATTORNEY GENERAL CUMMINGS and SECRETARY ICKES.

* * *

W. H. PATTERSON, former scout for United Gas Company at Houston, Tex., and MISS LELDA KING, secretary to HARRY C. SPOORE, head of geological department of the company, were married Friday evening. Mr. Patterson is now with the Bishop Oil Company and is being transferred to Wichita, Kans.

* * *

JIM WHITTINGTON, independent operator of Amarillo, Tex., has returned after a four months' stay in Dallas, Tex.

* * *

GEORGE D. LOCKE, vice president of the Barnsdall Refineries, Inc., returned to Chicago last week after spending several days in New York City.

* * *

W. P. (RED) KNIGHT is now representing the Rector Well Equipment Company in West Texas and New Mexico, with headquarters at Midland, Tex.

* * *

FRANK RAND, of the McClanahan Oil Company, who attended the Kentucky Derby in Louisville, returned last week to his work in Central Michigan fields.

* * *

G. A. WIDOE, who has been in the Kansas City office of the Combustion Engineering Company, will take charge of the Tulsa office for a period of about three months.

* * *

R. T. (DICK) HERNDON, vice president in charge of sales for the Texas Company of California, has sailed from Los Angeles Harbor to New York on the Steamer Virginia.

* * *

C. P. PARSONS, field engineer of the Halliburton Oil Well Cementing Company, of Duncan, Okla., will give a lecture and motion picture demonstration of oil well cementing operations in Mount Pleasant, Mich., Monday, May 28, under the auspices of the Oil and Gas Association of Michigan.

* * *

DR. FRANK LEVERETT, geologist of the University of Michigan, will direct the annual two-day field trip of the geological and mineralogy division of the Michigan Academy of Science on a study of the Pleistocene features of the thumb region of Michigan, May 26 and 27, it was announced by S. G. GERGQUISE, of Michigan State College, chairman. About 40 geologists are expected to participate.

California Called Him Back to Stay

Joe H. Royer, superintendent of the Birch Oil Company, broke into oil field work as a rig builder in California in 1896, having previously served an apprenticeship as a carpenter back in Ashland County, Ohio, where he had been born and passed his boyhood. From that time until 1905 he remained in the oil fields, working as tool dresser, driller and member of well pulling gangs. He was employed by many of the small operators who made up the oil industry in California during the period when Santa Paula, Newhill, Los Angeles, Whittier and Puente were the centers of the only producing fields in California, and one 50,000-barrel tank comprised the storage facilities of that State. He remembers how in 1898 oil dropped to 10 cents a barrel and oil wells were shut down for 30 days to relieve storage, which had reached a peak of 45,000 barrels.

JOE H. ROYER

In 1905 Mr. Royer went back East, his first trip home in nine years, and got a job as fireman on the Pennsylvania Railroad; but California called, and after two years shoveling coal and cleaning a locomotive grate he returned to the Pacific Coast. During the next two years he worked as a driller and in 1909 he joined the Birch Oil Company. He has served that company 24 years on its property on the southern slopes of the Puente Hills. First he worked as driller and drilling foreman and then was advanced to his present position of superintendent.

In 1903 Mr. Royer married Miss Effie Mowers and they have two sons, who often spend week-ends with their father on his ranch near Riverside. The three do much hunting together.

RAYMOND B. KELLEY, assistant division manager for the Pure Oil Company, Fort Worth, Tex., is in Pittsburgh, Pa., this week.

* * *

B. FLEEGER has been elected president of the Oklahoma Steel Castings Company, Tulsa, succeeding ERNEST CORNELIUS, who passed away recently.

* * *

HAROLD DAVIDOR has returned to Mount Pleasant, Mich., after supervising completion of a gas well by the Atlantic Seaboard Natural Gas Company near Smithport, Pa.

* * *

HENRY BRONSCOMBE, who sustained head injuries from a falling cashinghead while pulling pump in the Petrolia Field, Ontario, recently, is reported recovering at the C. E. Englehart Hospital at Petrolia.

* * *

LEW D. HILTON, representative for Cameron Iron Works and the Rector Well Equipment Company in Kansas and Oklahoma, with headquarters at Oklahoma City, Okla., is visiting his son Dale, who is attending the University of Southern California at Los Angeles.

* * *

PAUL DUMANOIS, inspector-general of aeronautics and director of technical services to the Office National des Combustibles Liquides, Paris, France, has been raised to the rank of Commander of the Legion of Honor for his petroleum researches and the services he has rendered the industry in general.

* * *

HOWARD D. ATHA, president of the Oil and Gas Association of Michigan, and WALTER WYKOFF, office manager of the Gordon Oil Company, both of Midland, Mich.; DR. VIRGIL R. D. KIRKHAM, consulting geologist and vice president of the association, and JAMES C. GRAVES, chairman of the Michigan Proration Committee, both of Saginaw, and GEORGE SCHEID, new Central Michigan representative of the Jones Sucker Rod Company, were in Tulsa last week.

L. C. GLENDENNING, Union Oil Company of California, discussed taxation problems before the recent meeting of the Los Angeles Petroleum Accountants Society.

* * *

A. A. JEANISSE, general superintendent at Humble, Tex., for Humble Oil & Refining Company, is in the St. Josephs Hospital in Houston, Tex., after a serious operation.

* * *

J. H. TUTTLE, secretary of the Standard Oil Company of California, and V. F. PALMER, treasurer, were recently re-elected to their respective positions at the annual meeting of the company.

* * *

K. P. HART, combination scout and lease man for the Texas Company, has been transferred from Carlsbad, N. Mex., to Midland, Tex., from which point he will cover West Texas and southeastern New Mexico.

* * *

L. K. LANEY, consulting engineer for the Texas Company, Fort Worth, Tex., has returned from a business trip to the Rocky Mountain division where the company has headquarters in Denver, Colo. He visited Tulsa on the return trip.

* * *

ROY E. COLLOM, for some time assistant to the president of the Continental Oil Company, and in charge of California operations of the company, has been elected vice president and in his new capacity will be in charge of all exploratory work.

* * *

J. E. MAGNER, of the Magner Supply Company, has been seriously ill at his home in Sistersville, W. Va. Mr. Magner is well known to the oil fraternity of West Virginia, Ohio, Pennsylvania, and Michigan, having operated supply stores in these states over a period of 40 years.

* * *

W. W. BOYD, Tulsa representative for the Combustion Engineering Company, is leaving immediately for a three months' trip to Central America where he will contact the oil companies.

* * *

WESLEY G. GISH, in charge of the land and geological departments for the Sinclair Prairie Oil Company, Fort Worth, Tex., has returned to his duties after a several weeks' siege of scarlet fever.

* * *

E. W. BOWNESS, vice president, and P. D. MELLON, chief engineer and general manager of the Canadian Western Natural Gas, Light, Heat & Power Company, of Calgary, paid an official visit to the Lethbridge, Alberta, branch recently.

* * *

CAPT. E. J. JONES, aviation manager of the Shell Company of Australia, Ltd., is touring Australia in the company's Moth, the "Golden Shell," in company with H. SHAW, of the London, England, office. Their mission is the inspection and improvement of airdome facilities throughout the commonwealth.

* * *

M. G. ROBERTS, of the Tide Water Oil Company, Tulsa, is chairman of the Petroleum Group of the National Association of Credit Men, which will meet at the Credit Congress of the Industry at Los Angeles, Calif., June 14. This is the trade group meeting of the annual convention of the National Association of Credit Men.

* * *

EUGENE GUMAN, technical director of the Societatea Nationale de Gaz Metan, Medias, Rumania, is in the United States for the purpose of studying natural gas practices, both industrial and domestic consumption. His tour will carry him into the gas field and several important cities. Mr. Guman plans to visit Pittsburgh, Pa.; Cleveland, Ohio; Chicago, Ill.; St. Louis, Mo.; Dallas, Fort Worth, and Houston, Tex.; Shreveport, Monroe, and New Orleans, La. While in Cleveland, Mr. Guman will inspect the American Gas Association testing laboratory.

MARKET RECORD OF OIL SECURITIES

Active Oil Stocks Listed on New York Stock Exchange

Compiled by Carl H. Pforzheimer Co., 25 Broad Street, New York City, Members New York Stock Exchange and New York Curb Exchange

1934 High	1934 Low	Week ended May 19 Sales	High	Low	Close	Stocks—	Total shares outstanding	Par value	Dividend rate	Payable or last paid	1933 High	1933 Low	1932 High	1932 Low	1931 High	1931 Low
53¾	41½	2,200	49	46¾	48¼	Amerada Corp.	767,375	N.P.	50eQ	1-31-34	47⅝	18½	22⅜	12	23	11¼
35¼	21¾	20,600	25⅞	21¾	25⅜	Atlantic Refining	2,665,234	$25	25eQ	6-15-34	32½	12⅜	21⅞	8⅝	23⅝	8⅝
10	7	12,300	8¼	7	8⅛	Barnsdall Corp.	2,248,795	$5	....	5-11-31	11	3	7	3⅜	14½	4
19¼	11⅛	37,700	13¼	11¼	12⅝	Columbia Gas & Elec.	11,610,036	N.P.	12½eQ†	5-15-34	28⅛	9	21	4¼	45⅝	11⅝
14¼	9½	32,000	11⅛	9½	10¾	Consolidated Oil Corp.	14,218,835	N.P.	28c	4- 7-34	15¾	5	9	4	15⅞	4⅛
22¾	16½	31,400	20½	17½	20⅛	Continental Oil of Delaware	4,738,593	$5	25c	4-30-34	19⅝	4⅞	9⅜	3⅝	12	5
22¼	15⅛	5,300	19⅜	16	18¾	General Asphalt	387,149	$10	....	6-15-32	27	4⅝	15½	4¾	47	9⅝
5⅝	3¼	4,000	4	3½	4	Houston Oil (new)	1,098,618	$25	....	10-17-30	7⅜	1⅞	5⅜	1⅛	14⅛	3
3⅜	1⅜	600	2	1⅜	2	Louisiana Oil Refining	1,302,158	N.P.	....	.....	4	⅝	2¼	½	4½	1
14¾	11	5,700	12⅞	11	12¾	Mid-Continent Petroleum	1,857,912	N.P.	25c	5-15-34	16	3¾	8⅞	3¾	16¾	5
20¾	11½	2,400	16¾	14¼	16¼	National Supply of Delaware	382,591	$25	....	5-15-31	28⅝	4	13	3½	70¼	5
15⅞	10½	16,200	12⅜	10½	12¼	Ohio Oil Co.	6,563,107	N.P.	15c	6-15-34	17⅝	4⅜	11	5	19½	5½
8⅝	6½	2,300	7⅜	7	7⅜	Pacific Western Oil	1,000,000	N.P.	25c‡	10-25-33	9½	3	8	3	15	2⅞
2½	1¼	800	1½	1¼	1½	Panhandle P. & R.	198,770	N.P.	....	.....	4¼	⅜	1¼	¼	4¼	⅝
20¾	15½	15,000	18½	16¼	18	Phillips Petroleum	4,154,687	N.P.	25c	5-14-34	18¾	4¾	8½	2	16⅝	4
16¾	10	9,800	12⅜	10	12⅜	Plymouth Oil Co.	990,261	$5	25eQ	3-31-34	17⅝	6¾	12½	6	19	6
14⅞	9⅜	14,700	11¼	9⅝	10⅝	Pure Oil	3,038,370	N.P.	....	9- 1-30	15⅜	2½	6½	2⅞	11⅞	3¼
39½	33	2,900	35⅝	34	35⅝	Royal Dutch N. Y. shares	432,224	$14	$1.07½	8-14-33	39¾	17⅝	23⅜	12½	42⅝	13
38⅝	25⅜	6,100	33½	31⅞	32⅞	Seaboard Oil of Delaware	1,204,460	N.P.	15eQ§	6-15-34	43⅜	15	20⅜	6⅝	20⅜	5½
11⅞	7⅝	7,300	9	8⅛	8¾	Shell Union Oil	13,070,625	N.P.	....	6-30-30	11⅝	4	8¾	2½	10¼	2½
89	58	500	72½	72	72½	Shell Union Oil pfd.	400,000	$100	....	7- 1-31	61	28½	65¼	18	78	15
11¼	8½	2,500	9	8½	9	Simms Petroleum	461,000	$10	25c	1-17-34	12⅜	4⅞	7½	3¼	11	3½
11½	7⅞	2,300	10	9	9½	Skelly Oil	1,008,514	$25	....	12-15-30	9⅞	3	5¾	2½	12⅞	2
19⅞	14	38,500	16	14	16	Socony-Vacuum	30,905,006	$25	15eQ	6-15-34	17	6	12¼	5¼	21	8⅜
42⅞	30⅝	15,000	33	30⅝	32½	Standard Oil of California	13,102,900	N.P.	25c	6-15-34	45	19½	31⅞	15⅛	51¾	23⅛
41	33⅞	2,300	42¼	39¼	39¾	Standard Oil of Kansas	200,000	$10	50eQ	7-31-34	39⅞	12¾	16½	7	19	7⅝
50⅛	41⅛	29,200	43⅛	41⅛	42¾	Standard Oil of New Jersey	25,740,965	$25	50eSA	6-15-34	47½	22¾	37⅜	19⅞	52½	26
62	51½	No sales	..	..	..	Sun Oil	1,733,013	N.P.	25eQ	6-15-34	59	35	39⅞	24⅜	45¼	26¾
29⅜	21½	18,800	24⅞	21½	23⅞	Texas Corp.	9,352,371	$25	25eQ	7- 1-34	30⅛	10⅜	18¼	9¼	36¼	9⅞
6½	3⅛	3,000	4⅜	3¾	4⅜	Texas Pacific Coal & Oil	880,703	$10	....	12-31-29	6½	1⅜	4	1½	6½	1⅞
14¼	8½	18,700	13	11½	13	Tide Water Associated	5,618,672	N.P.	....	2-16-31	11¾	3⅛	5⅞	2	9	2⅛
84¾	64½	800	80	77⅞	79⅞	Tide Water Associated pfd.	666,524	$100	$1.50Q	4- 1-34	65¼	23½	60	20	68	20½
20½	15	5,100	16⅞	15	16½	Union Oil of California	4,386,070	$25	25eQ	5-10-34	23⅜	8½	15⅝	8	26⅝	11
21	15⅝	1,300	19	18½	19	Union Tank Car	1,200,000	N.P.	30eQ	6- 1-34	22¾	10½	19¼	11⅜	25½	16
5¾	3½	1,900	4	3½	3¾	Wilcox Oil & Gas	424,839	$5	....	5-10-28	5½	2	8¾	2¾	9⅝	2¾

*Ex-dividend. †Payable in 5 per cent convertible preferred stock. ‡Initial dividend. §Plus extras.

Active Oil Stocks Listed on New York Curb

Compiled by Carl H. Pforzheimer Co., 25 Broad Street, New York City, Members New York Stock Exchange and New York Curb Exchange

1934 High	1934 Low	Week ended May 19 Sales	High	Low	Close	Stocks—	Total shares outstanding	Par value	Dividend rate	Payable or last paid	1933 High	1933 Low	1932 High	1932 Low	1931 High	1931 Low
38	31¾	No sales	..	..	..	Buckeye Pipe Line Co.	200,000	$50	75cQ	6-15-34	39¾	25	35	17½	56	30
5½	2¾	3,200	3¾	3¼	3⅝	Carib Syndicate	579,000	25c	....	.....	7¾	¼	¾	¼	2⅝	¼
126½	115	No sales	..	..	..	Chesebrough Mfg. Co.	120,000	$25	$1Q†	6-29-34	129	71	90	53	129½	75
4¼	1⅜	41,900	2¾	2⅜	2¾	Cities Service	37,804,394	N.P.	....	6- 1-32	6¼	1½	6⅞	1¼	20⅜	5
3¼	1¼	700	2¼	2⅛	2⅛	Colon Oil	2,200,000	N.P.	....	.....	4	¼	1¼	¼	3⅛	¼
3⅞	1⅝	1,100	2⅛	1⅞	1⅞	Cosden Oil	399,687	$1	....	.....	3⅞	1⅜	2⅞	¼	3¾	⅜
13⅜	9⅝	17,700	12⅝	11⅞	12	Creole Petroleum	6,974,356	$5	....	.....	12	4¾	3⅛	1⅜	3⅞	1⅝
7½	4¾	400	6	5½	6	Darby Petroleum	509,696	$5	25c	2-15-34	8	2⅛	7⅛	1⅝	2½	1⅝
2¼	1⅝	500	2	1¾	2	Derby Oil & Refining	263,162	N.P.	....	.....	2¾	⅞	3	1	6	1½
36	31	No sales	..	..	..	Eureka Pipe Line	50,000	$100	$1Q	5- 1-34	41¾	20	35	18	36	19
76¾	56½	2,700	61½	56½	61	Gulf Oil Corp.	4,538,101	$25	....	10- 1-31	62	24	44¾	23	75½	25⅜
46⅜	33½	5,300	43½	40	42¾	Humble Oil & Refining (new)	8,985,666	N.P.	25cQ	4- 1-34	105½	40	55	35⅝	72	44½
15⅛	12⅝	18,300	14¾	13⅛	14½	Imperial Oil of Canada	26,857,152	N.P.	25cSA†‡	6- 1-34	15⅞	6½	10⅞	6¼	18¼	7⅜
6⅞	3⅞	No sales	..	..	..	Indiana Pipe Line	300,000	$10	15cSA	5-15-34	8	3⅛	7½	2¾	21⅛	5½
27⅜	19⅜	18,000	26⅞	25¼	26½	International Petroleum	14,247,088	N.P.	56cSA†‡	6- 1-34	23½	8⅞	12¼	8	15½	7⅜
3¾	2⅛	5,400	3	2⅞	3	Louisiana Land & Exp.	3,000,000	N.P.	....	.....	2¼	⅛	2½	½	2	½
5⅞	4	No sales	..	..	..	Lion Oil Refining	270,000	N.P.	....	10-27-30	9½	1¼	3½	⅞	6¾	1½
8¾	4¾	2,600	6⅛	5¼	6	Lone Star Gas	5,382,723	N.P.	16cQ§	3-31-34	11⅞	4¾	11	3⅜	29	5½
5½	4	1,200	5	4⅝	5	Mountain Producers	1,682,182	$10	15cQ	4- 2-34	6½	2½	4¾	2⅛	5⅞	2
18⅛	14	1,000	15½	15	15⅛	National Fuel Gas	3,810,183	N.P.	25cQ	4-16-34	20	10	14⅝	8	26½	9¾
9½	8	400	8¾	8¼	8¾	National Transit	509,000	$12.50	40cSA	6-15-34	10	5½	10½	6	17½	5
8⅛	1¾	200	1⅞	1⅞	1⅞	New Bradford Oil	1,445,202	$5	10c	3-15-34	2⅛	½	⅞	¼	1½	½
2¾	1	400	1⅜	1⅛	1⅛	New Mexico and Arizona	1,000,000	$1	....	.....	1⅞	½	1¼	⅜	3	¾
4¾	3	100	3⅝	3⅝	3⅝	New York Transit	100,000	$5	15cSA	4-14-34	4⅞	3	9¾	7½	14½	5⅞
7	4⅝	400	6	5⅜	6	Northern Pipe Line	120,000	$10	25cSA	1- 2-34	6⅛	4¼	5½	3⅛	35½	20
2⅝	⅞	6,300	2⅛	1⅜	2	Pantepec Oil	1,608,700	N.P.	....	.....	3⅜	⅛	⅝	1/16	2	⅝
3⅛	1¼	100	1¾	1¾	1¾	Ryan Consolidated	296,931	N.P.	....	.....	4¼	⅝	2⅛	⅝	3	¾
7⅛	5¾	900	6⅞	6½	6⅞	Salt Creek Producers	1,496,859	$10	20cQ	5- 1-34	9¼	3½	5½	2⅞	7⅝	2¾
24⅜	17½	1,000	22½	20	22½	South Penn Oil	1,200,000	$25	30cQ	3-31-34	22¼	11	16½	9⅝	23⅞	9¼
4¾	4	200	4½	4⅜	4½	Southern Pipe Line	100,000	$10	10cSA	3- 1-34	6	2¼	10	3¾	17	7
47	41	No sales	..	..	..	Southwest Penna. Pipe Lines	35,000	$50	$1Q	4- 2-34	43	24½	37	27	42½	25
32¾	25	20,300	26½	25⅜	26⅜	Standard Oil of Indiana	15,528,504	$25	25cQ	3-15-34	34	17	25⅛	13⅛	38½	13½
17⅝	14⅝	2,800	15⅝	15⅛	15½	Standard Oil of Kentucky	2,606,983	$10	25cQ	6-15-34	19¼	8⅜	15⅞	8⅞	23⅜	12⅛
16⅝	13½	No sales	..	..	..	Standard Oil of Nebraska	190,822	$25	25cQ	6-20-34	20½	11	19	10¼	36½	16
27½	18¼	150	20	19¼	20	Standard Oil of Ohio	753,740	$25	....	1- 3-33	41	15½	30⅛	15½	62½	23
2	1/16	4,700	1½	1⅜	1½	Sunray Oil	1,162,840	$5	....	4-15-31	1½	¼	⅝	⅛	5¼	¼
11	4⅝	2,600	6½	4⅝	6½	Texon Oil & Land	936,028	N.P.	15c	3-31-34	13¾	6¼	10½	4½	12⅞	2½

*Ex-dividend. †Plus extras. ‡Payable in Canadian funds. §Payable in preferred stock.

Note—In comparing highs and lows for the several years in the two tables, it will be necessary to take into consideration cases where there have been stock split-ups.

Oklahoma Fields

(Continued from Page 61)

In Carter County, L. Sikes had rig on the ground for No. 1 Eaves, NE SW NW Section 5-2s-2w.

Skelly Oil Co.'s No. 4 Pierce, NW NE SW Section 8-2s-2w, is estimated to be good for 40 bbls. and 5,000,000 feet of gas, but had not yet been tested. It had a series of oil showings from 2,463 to 2,880 feet.

Magnolia Petroleum Co.'s No. 1-A James, NE SW Section 17-2s-2w, an old well deepened from 2,339 to 2,563 feet was showing production but had not been tested. It looked good for 100 bbls. a day.

Skelly Oil Co. had material on the ground for No. 3 Moore, SE cor. NW Section 17-2s-2w.

Dun-Mar Oil Co.'s No. 1 Miller, NW SW NE Section 6-1s-3w, was a hole full of water at 2,100-2,200 feet, and the tools have been moved out.

The Salome-Cooper Drilling Co.'s test, No. 1 West, NE SW SE Section 13-1s-3w, missed the Tatum sands; found black shale at 2,480 feet and drilled to 2,516 feet, where it was dry and was abandoned.

Mudge Oil Co. completed No. 4 Majors, SE SW SE Section 25-1s-3w. It swabbed 253 bbls. in 24 hours from broken sands, 2,520 to 2,687 feet. Rig is up for No. 8 Majors, NW cor. SE Section 25-1s3w.

Samedan Oil Co.'s No. 1 Higgins, pumped 207 bbls. of oil and 25 bbls. of water in 24 hours from sands at 2,655 to 2,695 feet. It was drilled to 2,726 feet and plugged back. The well was completed.

Ben G. Barnett made a location for No. 1-A Brown, NW SE SW Section 19-1s-2w.

Trowbridge and others completed a 10-bbl. pumper in No. 1 Ratliff, SE NW SW Section 19-1s-2w, producing from sands at 2,092 to 2,283 feet.

Gouin and others' No. 3 Burton, NE NW SE Section 31-1s-2w, was completed. It swabbed 125 bbls. from sands at 1,890 feet downward, total depth 2,221 feet.

Karchmer & Smith moved material in for No. 1 Lynn, NW SE NE Section 31-1s-2w.

GASOLINE REVENUE DOWN

OTTAWA, Canada, May 19. — The revenue from gasoline taxes throughout Canada in 1933 decreased by $515,551 under those of 1932, according to a preliminary report issued last week by the Dominion Bureau of Statistics. In the same period, motor registration fees decreased by $615,254.

Gulf Coast Fields and Wildcats

(Continued from Page 67)

Texas Co.'s No. 8 Wilburn, 25 ft. W of No. 5 and 50 ft. N of S line in the Henry Griffith League ..... O.T.D. 4,979 ft.; drlg. sand 5,035 ft.

Texas Gulf Prod. Co.'s No. 2 Barber, 514 ft. W, 41 ft. S of NE cor. of lease, Henry Griffith League..... T.D. 4,134 ft.; W.O.C.

Texas Gulf Prod. Co.'s No. 8 A. E. Barber, 400 ft. S of N line and 50 ft. E of W line of lease ..... Drlg. sand and boulders 2,095 ft.

Texas Gulf Prod. Co.'s No. 2 Fitzgerald, 300 ft. from W and 80 ft. from S line of lease ..... T.D. 5,447 ft.; flow 936 bbls., 20 per cent S.W., ½-in. choke, 135 lbs. pressure.

Texas Gulf Prod. Co.'s No. 4 Wilburn, Wm. Hodges Sur., 330 ft. N of S line, 50 ft. W of E line ..... T.D. 4,881 ft.; cmtd. 3,782 ft.; drlg. shale and sand 4,196 ft.

Yount Lee Oil Co.'s No. 23 Chambers County, Wm. Bloodgood Sur., 116.9 ft. S of N line and 247 ft. W of E line ..... T.D. 4,322 ft.; est. 600 bbls. daily, ⅝-in. choke; comp.

Yount Lee Oil Co.'s No. 24 Chambers County, 400 ft. W of No. 23 in line with No. 21 ..... Rigging up.

Yount Lee Oil Co.'s No. 8 Phillips, Wm. Hodges Sur. ... T.D. 1,405 ft.; W.O.C.

BIG CREEK—FORT BEND COUNTY

Gulf Prod. Co.'s No. 62 Davis, 2,270 ft. SW of No. 59 and in line with No. 21 and No. 59 in M. Young Sur. ..... Drlg. sandy shale and lime 3,658 ft.

RABBS RIDGE—FORT BEND COUNTY

Humble O. & R. Co.'s No. 21-A F. J. Booth ..... T.D. 5,250 ft.; W.O.C.

Humble O. & R. Co.'s No. 26-A Lockwood & Sharp, 755 ft. N and 14 ft. W of No. 26-B, in J. Rabb Sur. .... Location.

Humble O. & R. Co.'s No. 27-A Lockwood & Sharp, 1,149 ft. W of No. 26-A and 755 ft. W of No. 27-B in J. Rabb Sur. ..... Location.

Humble O. & R. Co.'s No. 27-B Lockwood & Sharp, 1,153 ft. W of No. 26, J. Rabb Sur. ..... T.D. 5,326 ft.; comp. 54 bbls. hr., ⅝-in. choke.

Naylor's No. 4 S. B. Gehr, 1,260 ft. from W line and 330 ft. from S line of lease in Samuel Kennedy Sur. ..... T.D. 5,406 ft.; set screen; would n't flow; installing pumping unit.

LONG POINT—FORT BEND COUNTY

Oleson et al's No. 1 McFarland ..... Cutting and pulling screen; T.D 1,002 ft.

ORCHARD—FORT BEND COUNTY

Gulf Prod. Co.'s No. 39 Moore ..... Drlg. sand 3,710 ft.

SUGARLAND—FORT BEND COUNTY

De Walt Oil Co.'s No. 1 Peterson ..... Top salt 4,512 ft.; T.D. 4,514 ft.; P.B. 3,300 ft.; sand shale 4,262 ft.; S.D.

HIGH ISLAND—GALVESTON COUNTY

D.E.M. Oil Co.'s No. 2 Great Western ..... T.D. 152 ft. in rock; putting on pump.

Yount Lee Oil Co.'s No. 4 Broussary & Orme, M. Dunman Sur., 129 ft. SW of No. 3 ..... Top salt 4,565 ft.; T.D. shale and pyrite 5,358 ft.; drlg. shale 5,367 ft.

Yount Lee Oil Co.'s No. 41 Cade, Fitzsimmons Sur. ..... Rigging up.

Yount Lee Oil Co.'s No. 40 Cade, 430 ft. NW of No. 2-B, 360 ft. from E line of lease and in line with No. 39 and No. 2-B, Fitzsimmons Sur. ..... Drlg. 3,142 ft.

Yount Lee Oil Co.'s No. 2 Mathis, M. Dunman Sur., direct offset No. 1 Spencer ..... Base salt 3,760 ft.; drlg. 3,772 ft.

Yount Lee Oil Co.'s No. 12 Smith, 330 ft. W of No. 11 and 100 ft. N of No. 2 ..... Drlg. 4,992 ft.

Yount Lee Oil Co.'s No. 22 Smith ..... Derrick.

ARRIOLA—HARDIN COUNTY

Republic-Houston's No. 2-X Arriola fee ..... Salt water sand 4,511 ft.; sidetracking 2,250 ft.

BATSON—HARDIN COUNTY

Danciger O. & R. Co.'s No. 2 Hooks, W. Donoho Sur., 330 ft. E of CWL, Blk. 24 ..... T.D. 4,795 ft.; flowed salt water; P.B. 4,773 ft.; still showing salt water.

SARATOGA—HARDIN COUNTY

Rio Bravo Oil Co.'s No. 108 Jordit, 120 ft. S and 150 ft. W of No. 98 well ..... T.D. 1,086 ft.; comp. 24 bbls. oil and 85 bbls. water daily.

Rio Brava Oil Co.'s No. 109 Jordit ..... Drlg. sand and shale showing oil 939 ft.

Seismo Oil Co.'s No. 1 Casewell, 940 ft. S of NW cor. and 600 ft. from E line, B.B.B.&C. Sur. ..... T.D. 3,212 ft.; shut down.

Skinner Oil Co.'s No. 3 Bessler ..... Drlg. 2,052 ft.

SOUR LAKE—HARDIN COUNTY

Alpha Pet. Co.'s No. 1 J. M. Weiss, 122 ft. S of Steinberger's No. 1 Weiss in Blk. 25 ..... Moving in.

Parr et al's No. 1 Benard, in W.C.R.R. Sur. No. 69 (west edge) ..... T.D. 7,061 ft.; washing.

Steinberger Pet. Co.'s No. 1 Weiss, 150 ft. W of Parr No. 1 and 50 ft. out of SE cor. of Blk. 28, E. B. Williams Sur. ..... Location.

Yount Lee Oil Co.'s No. 6 Lynn, 250 ft. from W line and 200 ft. from N line of 43-acre tract in Sour Lake Oil Co. Sub. ..... Drlg. 2,962 ft.

GOOSE CREEK—HARRIS COUNTY

Edwards Drlg. Co.'s No. 1 Matthews, 40 ft. from S line and 37 ft. from W line of 1-acre tract in Wm. Scott Sur. No. 67 ..... T.D. 4,020 ft.; swabbing.

Gulf Prod. Co.'s No. 13 St. Land Prod., 39 ft. from E line or 89.4 ft. W of Sun Oil Co.'s No. 1 McFarland, Wm. Scott Sur. No. 67 ..... Drlg. sand 4,680 ft.

Gulf Prod. Co.'s No. 18-A Tabb-fee, 217 ft. S of No. 17-A and C of tract in Wm. Scott Sur. ..... Drlg. sand 3,186 ft.

Hamil & Smith's No. 1 Chapman & Bryan (workover) .. Drlg. hard shale 4,758 ft.

Hoffner & Moore's No. 1 A. A. Wright, 50 ft. N and 50 ft. E of SW cor. of Blk. 7, Wm. Scott Sur., Abst. No. 65 ..... T.D. 5,221 ft., shale; standing.

Humble O. & R. Co.'s No. 80 Simms-Smith ..... Bldg. derrick.

Humble O. & R. Co.'s No. 27 Sweet, 37 ft. W of SE cor. of Hughes 7½-acre tract and 40 ft. from N line of lease, Wm. Scott Sur. No. 67 ..... Drlg. shale 4,015 ft.

Humble O. & R. Co.'s No. 28 Sweet, 13 ft. W of SE cor. of Scott 2½-acre tract and 53 ft. from N line of lease, Wm. Scott Sur. No. 67 ..... Location.

Miramar Oil Co.'s No. 2 Hughes, 284 ft. from S line and 50 ft. from E line of 7½-acre tract in Wm. Scott Sur. ..... Drlg. shale and lime 3,405 ft.

Jay Simmons' No. 1 Dannebaum, 45 ft. from S and 50 ft. from E lines of lease in W. Scott Labor Sur. .... Derrick.

Jay Simmon's No. 1 Kerwin Mitchell, SE cor. of 6-acre tract ..... Coring 4,480 ft.

Thomas Drlg. Co.'s No. 1 Jones ..... Derrick.

Wilhite's No. 1 Gillette ..... Drlg. sand 2,809 ft.

Wilhite's No. 1 Isenhour ..... Rigging up.

Wilhite's No. 2 Gillette, 100 ft. SW from N line of SW Hoskins tract in Lot 1 and 50 ft. NW from W bank of stream, Wm. Scott Sur. No. 66 ..... Derrick.

HUMBLE—HARRIS COUNTY

Rio Bravo Oil Corp.'s No. 8 fee, 250 ft. E, 100 ft. S of No. 2 fee ..... Drlg. shale 1,595 ft.

Texas Co.'s No. 47 Stevenson, J. B. Stevenson Sur., 859 ft. E, 457 ft. S of NW cor., Lot 1-A ..... T.D. 5,338 ft.; S.D.

PIERCE JUNCTION—HARRIS COUNTY

Hamil & Smith's No. 1 Gulf fee, 4-acre tract in W. H. Jones Subd. ..... T.D. 3,495 ft.; W.O.C.

Rio Bravo Oil Corp.'s No. 9-A Settegast, 1,575 ft. N line, 350 ft. E line NE cor. "A" lease, J. A. Kopman Sur... T.D. 4,510 ft.; rigging up to work over; standing.

Rio Bravo Oil Corp.'s No. 12-A Settegast, 1,410 ft. N line, 650 ft. E line, J. A. Kopman Sur. ..... T.D. 5,404 ft.; cleaning out.

Rio Bravo Oil Co.'s No. 24-A Settegast, J. Kopman Sur. No. 44, 1,000 ft. S, 200 ft. W of NE cor. of "A" lease.. Set screen at 4,731 ft.

TOMBALL—HARRIS COUNTY

Amerada-Rycade's No. 1 Ashley, 500 ft. E and 466 ft. S of Ashley tract in Joseph House Sur. ..... Drlg. sand 2,580 ft.

Amerada and Stanolind's No. 3 Fletcher, 464 ft. from W line and 466 ft. from N line of lease in J. House Sur. No. 34 ..... T.D. 5,600 ft.; comp. 16½ bbls. hr., ¼-in. choke.

Humble & Magnolia's No. 3 Bloecher, 984 ft. from N line and 663 ft. from W line of lease, J. Hooper Sur. No. A-375 ..... Drlg. shale 950 ft.

Humble O. & R. Co.'s No. 1 Johlke, 466 ft. from S line and 300 ft. from E line of 50-acre tract in J. H. Edwards Sur. ..... T.D. 5,612 ft.; abnd.

Humble O. & R. Co.'s No. 1 C. F. Hoffman, 1,900 ft. from S line and 466 ft. from E line of 123-acre tract, I.&G.N. Sur. No. 952 ..... Drlg. sand 5,556 ft.

Humble O. & R. Co.'s No. 2 C. F. Hoffman, 466 ft. E of most easterly W line and 466 ft. N of most northerly S line of 100-acre lease in J. House Sur.... T.D. sand 5,587 ft.; comp. 18 bbls. hr., ¼-in. choke.

Humble O. & R. Co.'s No. 1-B J. F. W. Kobs, 466 ft. from S line and 405 ft. E. of W line of tract, J. Edwards Sur. ..... Derrick.

Humble-Magnolia's No. 3 Theo. Krug, 6,360 ft. N of most southerly S line and 235 ft. W of W line of Scherer 112-acre tract in J. H. Edward Sur. No. 20.. Drlg. shale 5,476 ft.

Humble-Magnolia's No. 1 Krug, 600 ft. N and 187 ft. E from SW cor. of J. F. W. Kobs 30.6-acre tract in J. H. Edwards Sur. ..... Location.

Humble-Magnolia's No. 2 Krug, 466 ft. from E line of lease and 800 ft. S of S line of Sherer 112-acre tract in J. H. Edwards Sur. ..... Location.

Humble & Magnolia's No. 2 Rudel-Oster, 150 ft. S of Amerada & Stanolind's No. 2 Fletcher, half way between E and W lines of 50-acre tract in J. House Sur. No. 34 ..... Location.

Humble-Magnolia's No. 1-B Schultze, 466 ft. from W line and 3,27 ft. from S line of tract in J. H. Edwards Sur. No. 20 ..... T.D. 982 ft.; W.O.C.

Humble & Magnolia's No. 1 H. Theak, 200 ft. from E line and 2,500 ft. from S line of 180-acre tract in Wm. Hurd Sur. ..... T.D. 5,584 ft.; W.O.C.

Shell Pet. Co.'s No. 1 W. W. Baker, 440 ft. S of C of N line of lease, J. House Sur. No. 34 ..... Location.

Shell Pet. Co.'s No. 2 W. W. Baker, 630 ft. S of No. 1 and 466 ft. from W line of lease, J. House Sur. No. 34 ..... Location.

Skelly Oil Co.'s No. 1 Schultz, J. H. Edwards Sur., 456 ft. from S line, 404 ft. from E and W lines .... Rigging up.

Texas Co.'s No. 2 Hirsch, 1,000 ft. E of W line and 350 ft. N of S line of lease in J. House Sur. ..... T.D. 5,611 ft.; W.O.C.

Texas Co.'s No. 2 Scherer (W. V. Bowles), 2,150 ft. S and 466 ft. W of NE cor. of lease in J. House Sur... Elev. 212 ft.; drlg. lime and shale 5,409 ft.

ESPERSON—LIBERTY COUNTY

General Crude Oil Co.'s No. 7 Davis, 100 ft. S of No. 4 in David L. Kokernut Sur. ..... T.D. 4,556 ft.; L.P. 50 bbls. day.

General Crude Oil Co.'s No. 8 Davis, 660 ft. from S and 1,000 ft. from E line of lease in D. Kokernut Sur.... Rigging up.

HULL—LIBERTY COUNTY

Bashara Oil Co.'s No. 1 Hannah, Jessie De Vore Sur., 126 ft. E of Texas Co.'s No. 1 Hannah, 50 ft. N of S line ..... T.D. 4,475 ft.; P.B. 3,600 ft.; abnd.

Eclipse's No. 4 Barrow ..... Preparing to work over.

W. B. Flynn's No. 14 Abel, 90 ft. from N line and 150 ft. from E line of 10-acre tract in J. Devore Sur..... T.D. 591 ft.; pumping 2 bbls. daily.

Gulf Prod. Co.'s No. 100 Phoenix, 488 ft. from W line and 155 ft. N of Mirimar lease in E. G. Devore Sur. ..... Drlg. shale 4,102 ft.

Gulf Prod. Co.'s No. 99 Phoenix, 100 ft. N and W of NE cor. of Mirimar's 25-acre tract ..... T.D. 4,300 ft.; comp. 384 bbls. daily.

Gulf Prod. Co.'s No. 101 Phoenix, E. G. Devore Sur. ..... Rigging up.

Gulf Prod. Co.'s No. 102 Phoenix, E. G. Devore Sur. .... Location.

Houston Oil Co.'s No. 8 Orgain, 156 ft. W of No. 5 and 132 ft. S of No. 7 in J. Devore Sur..... T.D. 5,099 ft.; W.O.C.

Mirimar Oil Co.'s No. 10-A Phoenix, 250 ft. E of No. 3 and 100 ft. from N line of lease in J. Devore Sur. ... Drlg. sand and lime 4,251 ft.

Mirimar Oil Corp.'s No. 4-B Phoenix, 200 ft. E of No. 1 and 50 ft. from N line of lease in J. Devore Sur. .... Drlg. shale 5,100 ft.

Sun Oil Co.'s No. 6-A Carr, J. Devore Sur. ..... Drlg. 4,033 ft. in shale and lime.

Texas Co.'s No. 7 Barrow fee, 458 ft. S and 350 ft. W of NE cor. of tract in J. Devore league ..... Rigging up.

Humble O. & R. Co.'s No. 10 Wilder ..... Location.

LIBERTY COUNTY

Mrs. I. M. Lemon Oil Co.'s No. 1 Richardson, 120 ft. E of Gulf & Humble's No. 1 Carter, in M. G. White Sur. ..... T.D. 3,883 ft.; rerun tubing; standing.

CONROE—MONTGOMERY COUNTY

Gulf Coast Drlg. & Prod. Co.'s No. 23 Keystone Mills .. T.D. 1,338 ft.; W.O.C.
Gulf Coast Drlg. & Prod. Co.'s No. 24 Keystone Mills .. Coring 5,075 ft.
Humble O. & R. Co.'s No. 24 Keystone Mills ..... Drlg. 2,305 ft. in shale.
Humble O. & R. Co.'s No. 29 Keystone Mills ..... Drlg. shale 4,426 ft.
Humble O. & R. Co.'s No. 6-D Keystone Mills ..... T.D. 984 ft.; W.O.C.
Houston-Tide Water Oil Co.'s No. 8 Cartwright, 1,263 ft. from S line and 2,034 ft. from W line of lease in John Davis Sur. ..... Rigging up.
Houston-Tide Water Oil Co.'s No. 9 Cartwright, 1,263 ft. from S line and 1,200 ft. from W line of lease in John Davis Sur. ..... T.D. 5,182 ft.; comp. 31 bbls. hr., 5/16-in. choke.
Humble O. & R. Co.'s No. 1-E Cartwright, E offset to Brown & Wheeler's No. 1 Gilbert, J. A. Davis Sur.. Trying to bring in, 5,164 ft.; no pressure on tubing or casing.
Humble O. & R. Co.'s No. 1 McComb ..... Drlg. shale 5,075 ft.
Pine Tree Oil Co.'s No. 1 South Texas ..... Drlg. shale 5,182 ft.
Humble O. & R. Co.'s No. 47 Moore ..... Shale 5,105 ft.; comp. 83 bbls. hr., 1/8-in. choke.
Humble O. & R. Co.'s No. 51 Moore ..... T.D. 5,113 ft.; W.O.C.
Humble O. & R. Co.'s No. 4 Moorehead ..... T.D. 5,135 ft.; comp. 87 bbls. hr., 1/8-in. choke.
Humble O. & R. Co.'s No. 63-A South Texas Development Co. ..... T.D. 5,176 ft.; W.O.C.
Strake Oil Co.'s No. 4 Keystone Mills ..... Rigging up.
Strake Oil Co.'s No. 5 Keystone Mills ..... T.D. 5,083 ft.; comp. 9 bbls. hr., 1/8-in. choke.
Sun Oil Co.'s No. 13 Keystone Mills, 704 ft. E from No. 17 well, thence S 262 ft. in A. Steele Sur. ..... Rigging up.

PORT NECHES—ORANGE COUNTY

Texas Co.'s No. 2 Orange Natl. Bank, Jacob Beaumont Sur., 1,538 ft. W and 200 ft. S of NE cor. of lease .. Drlg. shale 6,436 ft.
Texas Co.'s No. 2-B Polk, 695 ft. N, 150 ft. S of NE cor. of N. Jacob Beaumont Sur. ..... Drlg., show oil and gas, 5,997 ft.

LIVINGSTON—POLK COUNTY

H. B. Owenby's No. 1 Kimes, 330 ft. from N line and 330 ft. from E line of 25-acre lease in A. Viesca Sur. ..... Drlg. 4,262 ft.
Reading & Bates' No. 2 Davis Holmes, 350 ft. from N line and 330 ft. from E line of lease in A. Viesca Sur. ..... Drlg. shale 4,271 ft.
Smith & McDannald's No. 2 Munson Heirs, 575 ft. from E and 330 ft. from S edge 31.35-acre tract in Mary C. Swinney Sur. ..... T.D. 4,337 ft.; comp. 224 bbls. daily.

GRETA—REFUGIO COUNTY

D. & D. Oil Co.'s No. 1 Fannie Heard, 330 ft. from N and E lines of Lot No. 14 ..... T.D. 3,639 ft.; jetting.
Fioboots Oil Corp.'s No. 1 M. C. Bauer, 330 ft. N line, 1,724 ft. from W line, J. M. Ximines Sur. ..... T.D. 3,487 ft.; flowing gas and S.W.; T.P. 325 lbs., C.P. 650 lbs.
Fioboots Oil Co.'s No. 4-C J. M. O'Brien, 503 ft. from E line and 466 ft. from S line of Blk. 8, Peoples Sur.. W.O.C.; T.D. 1,302 ft.
Hewitt & Dougherty's No. 4 Lambert, 466 ft. from N line and 567 ft. from W line of Blk. 5, Hardwick Sur. ..... Drlg. shale 2,130 ft.
Humble O. & R. Co.'s No. 2 Fannie Heard, 466 ft. S of most southerly N line and 303 ft. E of most westerly line in Crunk Sur. ..... T.D. 5,947 ft.; comp. 6 bbls. hr., 1/8-in. choke.
Humble O. & R. Co.'s No. 4 Fannie Heard, 1,216 ft. from E line and 466 ft. from N line of lease in Ximines Sur. ..... Drlg. sand 4,293 ft.
Humble O. & R. Co.'s No. 5 J. F. B. Heard in Peopes Sur. ..... Drlg. shale 281 ft.
Stanolind Oil & Gas Co.'s No. 3-A J. M. O'Brien, Peoples Sur., begin at NE cor. of "A" lease, thence W along N line 1,569 ft., thence S at right angles 466 ft., S offset to No. 4-B ..... S.D. 4,384 ft.
Stanolind Oil & Gas Co.'s No. 3 O'Connor, 1,620 ft. from S line and 466 ft. from W line of 100-acre lease in Crunk Sur. ..... Drlg. 3,262 ft.
Stanolind Oil & Gas Co.'s No. 4 O'Connor, 466 ft. from W and S lines of 100-acre lease in Crunk Sur. ..... S.D. 1,250 ft.
Texas Co.'s No. 1 James Welder, 2,700 ft. E and 466 ft. N of NW cor. of Continental's 200-acre Welder lease, John T. McGrew Sur. (N of Greta Pool) ..... T.D. 6,014 ft.; abnd.
United Prod. Co.'s No. 15 Fox, 330 ft. W of No. 2-A in Wm. Hews and L. Brown Sur. ..... Drlg. 4,923 ft.
United Prod. Co.'s No. 14 W. J. Fox et al, 466 ft. from N line and 1,066 ft. W of No. 11 on 848-acre tract in Wm. Hews and L. Brown Sur. ..... Shale and sand 3,577 ft., T.D.; S.D.
United Prod. Co.'s No. 3 Lambert ..... Rigging up.
United Prod. Co.'s No. 8 Lambert ..... Derrick.

CLAY CREEK—WASHINGTON COUNTY

Sun Oil Co.'s No. 3 Schermer, N. Clay Sur., 330 ft. NW, 330 ft. SW line of lease ..... Coring hard sand and sandy shale 4,016 ft.

BOLING FIELD—WHARTON COUNTY

Imperator Oil Co.'s No. 1 S. T. Taylor, 993 ft. SW and 183 ft. SE from N cor. of old Vacuum 50-acre lease and offset Texas' No. 12 Taylor in S. F. Austin Sur.. Drlg. shale 2,635 ft.

SOUTH LOUISIANA FIELDS

BLACK BAYOU—CAMERON PARISH

Shell Pet. Corp.'s No. 3 State ..... Drlg. hard sandy shale 1,297 ft.

BOSCO—ACADIA AND ST. LANDRY PARISHES

Superior Oil Co.'s No. 1 J. Sidney Arceneaux et al, 1,665 ft. N and 439 ft. W of SE cor. of Sec. 28-8s-3e ..... Rigging up.
Superior Oil Co.'s No. 1 U. T. Iseringhauser, 1,381 ft. E and 502 ft. S of NW cor. of Sec. 35-8s-3e ..... Rigging up.
Superior Oil Co.'s No. 1 Leo E. Kahan et al, 2,381 ft. N and 468 ft. W of SE cor. of Sec. 33-8s-3e ..... Rigging up.
Superior Oil Co.'s No. 1 Elize Mire, 890 rt. S and 597 ft. W of NE cor. of Sec. 33-8s-3e ..... Rigging up.
Superior Oil Co.'s No. 1 Loganstie Richard, 2,878 ft. S and 465 ft. W of NE cor. of Sec. 34-8s-3e ..... Rigging up.
Superior Oil Co.'s No. 1 Marcellus Savoie, 2,201 ft. S and 761 ft. W of NE cor. of Sec. 27-8s-3e ..... Rigging up.

CALCASIEU LAKE—CAMERON PARISH

Texas Co.'s No. 10-A State, 16,855 ft. W and 3,270 ft. N of NE cor. Sec. 1-14s-9w in Twp. 13s-9w ..... Rigging up.

CAMERON MEADOWS—CAMERON PARISH

Burton-Sutton Oil Co.'s No. 1 School Land, 2,280 ft. W and 20 ft. N of SE cor. of Sec. 16-14s-13w ..... T.D. 4,410 ft.; to work over; S.D.
Humble O. & R. Co.'s No. 8 Cameron Meadows ..... T.D. 507 ft.; W.O.C.
Humble O. & R. Co.'s No. 1-B Cameron Meadows, 250 ft. W and 2,640 ft. S of NE cor. of Sec. 24-14s-14w... Shale 1,542 ft.; W.O.C.
Texas Co.'s No. 1 Miami Corp. ..... Rigging up.

CHOCTAW FIELD—IBERVILLE PARISH

Standard Oil Co.' of Louisiana's No. 6 Myrtle Grove Wilbert, Sec. 52-9s-11e ..... Rigging up.

EDGERLY—CALCASIEU PARISH

Rex. Pet. Co.'s No. 13 Hunter, 466 ft. N, 99 ft. E of SW cor. of SE ¼ ..... T.D. 4,050 ft.; preparing to bail.
Union Sulphur Co.'s No. 1 La Prairie Narrone, 1,061 ft. N, 250 ft. W of SW cor. SW Sec. 21-9s-11w ..... Salt 6,520 ft., T.D.; using well for seismograph work.

FOUR ISLAND—TERREBONNE PARISH

Texas Co.'s No. 3 State, Four Island ..... Dredging canals.

GARDEN ISLAND—PLAQUEMINES PARISH

Texas Co.'s No. 11 Garden Island, 4,191 ft. S and 1,504 ft. W of NE cor. Sec. 107-23s-32e ..... Drlg. shale 1,172 ft.
Standard Oil Co. of Louisiana's No. 6 Myrtle Grove Wilbert, Sec. 52-9s-11e ..... Moving in rig; no report.

GUEYDAN—VERMILLION PARISH

Pure Oil Co.'s No. 6 Alliance Trust, 667 ft. E, 1,787 ft. S line of lease, Sec. 34-11s-1w ..... Drlg. sandy shale and lignite 6,665 ft.

HACKBERRY—CAMERON PARISH

Calcasieu Oil Co.'s No. 2 Hanszen, 400 ft. W and 200 ft. S of No. 1 in Sec. 14-12s-10w ..... T.D. 6,076 ft.; drlg. 6,165 ft., rock.
Gulf Prod. Co.'s No. 14-A Irwin, 300 ft. SE of No. 13-A .. Drlg. sand and gravel 1,562 ft.
Texas Co.'s No. 10-B State, 1,000 ft. E, 200 ft. N of NE cor. Sec. 13-12s-10w ..... T.D. 7,287 ft.; pulled tubing; swabbing casing.
Texas Co.'s No. 12-B State, 500 ft. SE of No. 10-B or 1,360 ft. E and 149 ft. S of NE cor. of Sec. 13-12s-10w ..... Derrick.
Union Sulphur Co.'s No. 1 Barbee est., 1,720 ft. N line, 320 ft. E of SW cor. Sec. 12-12s-10w ..... T.D. 7,986 ft.; sidetracking 6,869 ft.
Union Sulphur Co.'s No. 7 Humble lease, 1,010 ft. N, 661 ft. E of SW cor. Sec. 12-12s-10w ..... T.D. 6,142 ft.; abnd.
Yount Lee Oil Co.'s No. 11 Gulf Land, Sec. 14-12s-10w .. T.D. 6,204 ft.; tested S.W.; to deepen.
Yount Lee Oil Co.'s No. 14 Gulf Land ..... T.D. 3,856 ft.; prep. to drill plug. Drlg. sand 6,977 ft.

IOWA—CALCASIEU AND JEFF DAVIS PARISHES

Barnsdall Oil Co.'s No. 1 Caffal, 330 ft. N and E of SW cor. of lease ..... Drlg. sand 6,975 ft.
Barnsdall Oil Co.'s No. 5 Fontenot, 990 ft. N and 330 ft. W of SE cor. of SW of Sec. 7-9s-6w ..... Drlg. sand 6,975 ft.
Magnolia Pet. Co.'s No. 6 Wait ..... Drlg. sticky shale 6,920 ft.
Magnolia Pet. Co.'s No. 7 Wait ..... Shut down.
Magnolia Pet. Co.'s No. 8 Wait, 998 ft. W and 330 ft. N of SE cor. of 160-acre lease ..... Drlg. sandy shale 4,698 ft.
Shell Pet. Corp.'s No. 2 Ardoin ..... Coring sticky shale 6,800 ft.
Shell Pet. Corp.'s No. 7 Heyd, 660 ft. out of NW cor. of lease, Sec. 13-9s-7w ..... Coring brittle shale 6,521 ft.
Shell Pet. Corp.'s No. 8 Heyd ..... Drlg. shale and sand 5,674 ft.
Shell Pet. Co.'s No. 9 Heyd, 998 ft. W and 330 ft. S of NE cor. of 320-acre lease ..... Spud. and W.O.C.
Shell Pet. Co.'s No. 4 E. D. Stafford, 990 ft. S and 330 ft. W of NE cor. of lease ..... 20-in. at 39 ft.; W.O.C.
Shell Pet. Corp.'s No. 1 Tuter ..... Coring 6,710 ft.

JENNINGS—ACADIA PARISH

Heywood & Heywood's No. 4 Jennings fee, 960 ft. N and 280 ft. E of SW cor. of Sec. 49-9s-2w ..... T.D. 1,551 ft.; pumping 60 bbls. day; comp.
Yount Lee Oil Co.'s No. 13 Houssiere-Latrielle, Sec. 47-9s-2w, 300 ft. E of No. 12 ..... Drlg. 7,354 ft.

LAKE BARRE—TERREBONNE PARISH

Texas Co.'s No. 10 L.L.&E., 4,543 ft. S, 503 ft. W of NW cor. Sec. 20-21s-20 ..... Drlg. 3,692 ft.
Texas Co.'s No. 28-A Lake Barre, 200 ft. SE from No. 17 in Sec. 39-21s-19e ..... Derrick.
Texas Co.'s No. 28-D State Lake Barre, 300 ft. SW from No. 27 in Sec. 40-21s-19w ..... Drlg. salt 1,674 ft.

LEESVILLE—LAFOURCHE PARISH

Diadem Oil Co.'s No. 1 Cenac ..... T.D. 3,670 ft.; comp. 1,100 bbls. day, ¼-in. choke.
Robert Bowles' No. 2 Crosby, 2,408 ft. N and 1,952 ft. E of SW cor. of Sec. 26-21s-22e ..... Drlg. shale 711 ft.
Emerald Pet. Corp.'s No. 2 State of La., Sec. 26-21s-22e.. T.D. 3,712 ft.; comp. 1,032 bbls. oil day, 3/16-in. choke.
Emerald Pet. Corp., No. 5 State of La., 1,878 ft. N of No. 1 well in Sec. 26-21s-22e ..... Location.
Gulf Prod. Co.'s No. 2 Allen Land Co. ..... Drlg. sand 3,696 ft.
Gulf Prod. Co.'s No. 3 Bernard ..... T.D. sand 3,711 ft.; comp. 1,080 bbls. day.
Gulf Prod. Co.'s No. 4 Bernard, 1,086 ft. N and 292 ft. E of SW cor. of L. Bernard 5.8-acre tract in Lot 4, Sec. 26-21s-22e ..... Derrick.
Lincoln Oil Co.'s No. 1 Visier ..... Drlg. shale 3,331 ft.
Lincoln Oil Co.'s No. 6 State, 3,750 ft. N and 1,200 ft. E of SW cor. of Sec. 26 ..... Rigging up.
Texas Co.'s No. 15 L.L.&E. ..... Drlg. sand 3,388 ft.
Texas Co.'s No. 16 L.L.&E. ..... Rigging up.
Texas Co.'s No. 17 L.L.&E., 1,821 ft. S and 122 ft. E of NW cor. of Sec. 27-21s-22e ..... Rigging up.
Texas Co.'s No. 18 L.L.&E., 2,638 ft. S and 1,056 ft. E of NW cor. of Sec. 26-21s-22e ..... Drlg. shale 913 ft.

LOCKPORT—CALCASIEU PARISH

Magnolia Pet. Co.'s No. 7 Farquaher, 330 ft. S, 174 ft. W of NE cor. SW NE Sec. 8-10s-9w ..... T.D. 6,540 ft.; comp. 450 bbls. 40 gravity oil through ¾-in. choke, T.P. 1,000 lbs., C.P. 1,250 lbs.
Magnolia Pet. Co.'s No. 11 Bordages, 660 ft. N, 490 ft. W of SE cor. NE NE Sec. 8-10s-9w ..... T.D. 7,902 ft.; abnd.
Magnolia Pet. Co.'s No. 19 Miller, Sec. 8-10s-9w ..... T.D. 5,409 ft.; preparing to aban.
Strake Oil Co.'s No. 1 Miller, 500 ft. due N of Yount Lee's No. 1 Miller, Sec. 8-10s-9w ..... Drlg. 1,320 ft.
Union Sulphur Co.'s No. 1 Farquaher, 200 ft. S and W lines, NE cor. SW SE Sec. 36-12s-10w, 2-ac. tract .. Tested salt water; S.D.; T.D. 7,468 ft.
Union Sulphur Co.'s No. 6 Moss, between Nos. 2 and No. 5 ..... Drlg. shale and lime 3,155 ft.

PORT BARRE—ST. LANDRY PARISH

Texas Co.'s No. 17 Botney Bay, 1,800 ft. S 8 deg. W, 600 ft. N 82 deg. most southern NE 560 deg. tract, Sec. 4-6s-5e ..... Drlg. lime 2,996 ft.

STARKS—CALCASIEU PARISH

Union Sulphur Co.'s No. 5 Industrial Lbr. Co., 300 ft. S of No. 4, Sec. 30-9s-12w ..... Drlg. rock 4,602 ft.

SULPHUR—CALCASIEU PARISH

Union Sulphur Co.'s No. 788 fee, 662 ft. S, 1,309 ft. W of C Sec. 29-9s-10w ..... T.D. 6,103 ft.; drlg. new hole 3,149 ft., sticky shale.
Union Sulphur Co.'s No. 790 fee, 929 ft. S and 802 ft. W of center of Sec. 29-9s-10w ..... Drlg. sand and shale 6,151 ft.
Union Sulphur Co.'s No. 791 fee, 529 ft. N, 907 ft. E of SW cor. Sec. 33-10s-12w ..... T.D. 5,607 ft.; set whipstock 2,608 ft.; shale and lime 2,941 ft.; stuck drill stem; S.D. orders.
Union Sulphur Co.'s No. 793 fee ..... T.D. 2,959 ft.; 600 bbls. day; comp.
Union Sulphur Co.'s No. 794 fee ..... Drlg. gumbo and lime 3,441 ft.
Union Sulphur Co.'s No. 795 fee ..... Location.
Union Sulphur Co.'s No. 796 fee ..... Drlg. salt 1,770 ft.
Union Sulphur Co.'s No. 1 Bernard Ulrich, 75 ft. out of SW cor. Sec. 19-9s-10w ..... T.D. 5,738 ft.; fishing stuck drill stem.

SWEET LAKE—CAMERON PARISH

Pure Oil Co.'s No. 12 Yount Lee fee, 600 ft. S of No. 11, in line with Nos. 9 and 10, Sec. 12-13-8w ..... Coring 7,410 ft.

WHITE CASTLE—IBERVILLE PARISH

Shell Pet. Corp.'s No. 3 Wilbert, 717 ft. N 60 deg. 30 min. E from SE of Lot 3 of Fractional Sec. 9, in Sec. 1-11s-12e ..... Sand 4,573 ft.; S.D.

VINTON—CALCASIEU PARISH

Marrs-McLean's No. 16 Gray ..... Standing 2,377 ft.
Tri-Oil Co.'s No. 1 Matilda Gray, 38 ft. W, 35 ft. N, of SE cor. NE SW NE Sec. 33-9s-12w ..... T.D. 3,535 ft.; preparing to run tubing.
Wilson Broach Co.'s No. 11 Wilson strip (workover)..... Drlg. sandy shale 3,862 ft.
Wilson Broach Co.'s No. 15 Wilson strip ..... Drlg. 2,315 ft.
Vinton Pet. Co.'s No. 3 Gordon, Sec. 34-10s-12w, 209 ft. from S line, 50 ft. from W line of 2-ac. tract .. Shale 3,385 ft.; S.D.

MISCELLANEOUS WILDCATS

TEXAS

AUSTIN COUNTY

R. R. Mitchell's No. 1 H. Schleider, J. F. Fitzgibbons Sur., 300 ft. out NE cor. 96-ac. tract ..... T.D. 105 ft.; S.D.

Sun Oil Co.'s No. 1 Zetik, 662 ft. from N line and 1,509 ft. from W line of 104-acre tract in S. M. Williams Sur. ..... Coring shale 1,784 ft.

BRAZORIA COUNTY

C. & R. Dev. Co.'s No. 1 National Life Co., 340 ft. from W line and 340 ft. from N line of 100-acre tract out of W end Nos. 3 and 4 in Henry Austin League No. 4, Abst. No. 12 ..... Rigging up.

Danciger O. & R. Co.'s No. 3-A Hunt, 2,100 ft. from E, 2,000 ft. from S lines of Hunt's 1,000-ac. tract in W. C. Carson Sur. ..... Drlg. 6,764 ft.; no report.

Danciger Oil & Ref. Co.'s No. 1-E Hunt, 1,400 ft. from NW line and 1,750 ft. from NE line of 1,600-acre tract in W. C. Carson Sur. ..... Drlg. 6,870 ft.; no report.

Danciger Oil & Ref. Co.'s No. 1 Stark-Brown, 330 ft. out of most easterly NE cor. of lease in Perry & Austin Sur. ..... Drlg. 3,700 ft.; no report.

Shell Pet. Corp.'s No. 2 Haury (Danbury), H.T.&B. R.R. Sur., 720 ft. SE of No. 1 Blakely-Winston ..... Drlg. sandy shale 6,212 ft.

BRAZOS COUNTY

H. Elliott et al's No. 1 W. F. Odom, near center of 379-ac. tract in SW cor. of Isaack Curil Sur. ..... Cmtd. surface csg. 30 ft.

F. H. Scott's No. 1 Klintworth, I. Curd Sur., 300 ft. from N line, 400 ft. from E line ..... Drlg. 2,140 ft.

D. W. Young, Jr.'s (H. L. Bleam) No. 1 Harrison, 300 ft. from S and W lines of lease in J. D. Allcorne Sur. ..... Spudding.

CALHOUN COUNTY

Continental Oil Co.'s No. 1 American Nat. Realty Co., C of NE of Sec. 6, Blk. C ..... Rigging up.

Herman Heep Oil Co.'s No. 1 Welder, 7,500 ft. from W line of river ..... D.S. test 5,955-73 ft.; no show; coring 5,988 ft.

Herman Heep Oil Co.'s No. 1-B F. Welder ..... Spudding.

CHAMBERS COUNTY

John H. Carreker's No. 1 B. Weaver, 404 ft. out of SE cor. of lease in A. Weaver Sur. ..... Drlg. 2,200 ft.

J. E. Jones' No. 1 Canada-Smith Ranch, 356 ft. W and 330 ft. N of NE cor. of W. F. Gau 544-acre tract in J. S. Roberts Sur. ..... T.D. 6,612 ft.; abnd.

Miramar Oil Co.'s No. 1 Geo. Stengler, V. Barrow Sur., 3,200 ft. from E line and center of N and S lines of lease ..... T.D. 6,025 ft.; abnd.

COLORADO COUNTY

Coyle-Concord Oil Co.'s No. 1 Nelson, 3,200 ft. SE of NW cor. of section, 2,200 ft. SW at right angles in I.&G.N. Sur. ..... T.D. 4,052 ft.; rigging up to deepen.

Union Central Oil Co.'s No. 1 Mann, 620 ft. from W line and 330 ft. from N line of 20-acre tract in J. L. Dugat Sur. ..... Location.

FAYETTE COUNTY

Colorado Oil Co.'s No. 1 Anders ..... Drlg. gumbo and shale 2,562 ft.; no report.

FORT BEND COUNTY

Edwards Drlg. Co.'s No. 1 H. Hausler, 780 ft. S of NE cor. of 103-acre tract, 510 ft. W of E line, Wickson Sur. ..... T.D. 3,675 ft.; heaving shale; P.B. 3,235 ft.

Porter & Blanchard's No. 2 Wheat ..... Odor oil 2,528-83 ft.; T.S. 2,928 ft.; T.D. 2,969 ft., S.W.; abnd.

GALVESTON COUNTY

George K. Spoor's No. 1 Maco Stewart, 1,626 ft. N of SE cor. of Alex Farmer Sur. and 1,175 ft. E in W. K. Wilson Sur. (4 miles S of Dickinson) ..... Drlg. 3,040 ft.

Humble O. & R. Co.'s No. 1 Maco Stewart, C of E and W lines of 400-acre tract in John Sellars Sur., S of Dickinson Bayou, 3 miles N of Spoor well ..... Rigging up.

GRIMES COUNTY

Clark & Dodd's No. 1 Murry, 150 ft. W line, 300 ft. S line, Anderson Sur. ..... S.D. 1,305 ft.

W. D. Roan et al's No. 1 D. C. Kelly, 1,532 ft. from N line and 168 ft. from E line of U. Sanders Sur., near Carlos ..... Derrick.

HARDIN COUNTY

Greer & Frazier's No. 1 O. Sternberg, 660 ft. out of SW cor. of E 354 acres in H.&T.B. Sur. No. 283 ..... T.D. 6,849 ft.; to deepen.

Resource Oil Corp.'s No. 1 Sternberg Oil Co., C. of G. Dorsey No. 3 Sur., Abst. 193 ..... Derrick.

HARRIS COUNTY

Glenn H. McCarthy's No. 2 Preston on 80 ac. in Sec. 2, Blk. 3, 4 miles W of LaPorte ..... Location.

Golding & Murchison's No. 1 Clappert, W.C.R.R. Sur., Blk. 4, Sec. 9, 1,350 ft. from E line, 330 ft. from N line ..... T.D. 6,639 ft.; P.B. 6,400 ft.; abnd.

J. A. Hodges' No. 1 Scott, 200 ft. S, 900 ft. W of intersection of Crosby Huffman, F. Rankin Sur. ..... T.D. 6,275 ft.; S.D.

W. U. Paul's No. 1 E. M. House, 2,200 ft. N and 1,000 ft. E of NE cor. of E. Benson Sur. in M. Magruder Sur. ..... Spud.

J. E. Seiber's No. 1 Tyrell & Gareth, 2,800 ft. from E line and 2,400 ft. from N line of survey, Lot 18, Blk. 20, Highland Subd., Ashbell Smith Sur. ..... Slight show oil 3,404 ft.; coring ahead.

JACKSON COUNTY

Atkins & O'Neil's No. 1 Ward (Davis), C Lot 93, I.&G.N. Sur. No. 18, Blk. 8 ..... Drlg. 6,753 ft.

JASPER COUNTY

Louis Franklin's No. 1 Cartwright, 360 varas E line and 740 varas S line of Lot 19, Edward Legrande Sur. ... Rigging up.

JEFFERSON COUNTY

Lucky Strike Oil Co.'s No. 1 Walker, D. Easley Sur., 2,100 ft. N, 1,400 ft. E of NW cor. of Lot No. 13 .... S.D. 1,708 ft., shale and lime

Sun Oil Co.'s No. 1 H. Long, 1,500 ft. N line, 990 ft. E line of lease ..... T.D. 7,138 ft.; fishing drill stem.

LIBERTY COUNTY

Extension Oil Co.'s No. 1 J. A. Lovett, 200 ft. from E and 600 ft. from S line of lease, P. P. Deevers Sur... Drlg. gumbo 1,635 ft.

Gulf Prod. Co.'s No. 2 Kirby, John Pleasants Sur., 1,866 ft. S of No. 1 ..... Drlg. hard shale 8,734 ft.

Gulf Prod. Co.'s No. 3-C Kirby, 7,100 ft. S and 1,383 ft. E of NW cor. of John Pleasant Sur. ..... T.D. 5,986 ft.; abnd.

Gulf Prod. Co.'s No. 4-C Kirby, 1,700 ft. due W of No. 1 discovery well in John Pleasant Sur. ..... Moving in.

H. Sample's No. 1 Security Trust Co., 466 ft. from S and E lines of N 600 ac. of Lot 3 of H. Sample Subd. of J. Faulk Sur. ..... Drlg. 3,900 ft.

Thomas et al's No. 1-A Eicke, 660 ft. from W line and 2,350 ft. from S line of tract in Green Sur. ..... T.D. 5,058 ft.; D.S. test 5,025 ft. ¼-in. choke, 5 min., 8 thribbles mud; S.D. orders.

Turnbull & Irwin et al's No. 1 N. Hildebrandt, W. Whitlock Sur., C of E ½ of survey ..... T.D. 7,006 ft.; abnd.

MADISON COUNTY

Paul Edwards et al's No. 1 Fulcher, 1,161 ft. from E line and 1,632 ft. from N line of Fulcher Sur. ..... Derrick.

Paul Edwards et al's No. 1 L. M. Peters, Mahala Wilkinson Sur., 400 ft. from N line and 300 ft. from W line of 132-acre tract ..... Drlg. shale and sand 5,271 ft.

MATAGORDA COUNTY

Dr. Griffith's No. 1 fee, 3,000 ft. from N line and 3,000 ft. from W line of Wm. E. Bell Sur. ..... Derrick.

Oils Consolidated's No. 3 Hawkins, 200 ft. due NE of No. 1 well ..... T.D. 5,530 ft.; standing.

Skelly Oil Co.'s No. 1 Cobb, M. Cummins Sur., 434 ft. from E, 1,506 ft. S of F. G. Cobb's 167-ac. tract .... T.D. 7,186 ft.; P.B. to 7,076 ft.; 17/64-in. choke put on bottom of tubing; flowed 198 bbls. distillate 24 hrs.; S.D. for storage.

United North & South Dev. Co.'s No. 1 Unit 4, Buckeye farms, J. C. Keller league, 314 ft. N line and 302 ft. E line of lease ..... T.D. 7,871 ft.; tested S.W.; S.D. orders.

United North & South Dev. Co.'s No. 1 Unit 6 (No. 2 Stoddard), 25 ft. each way out of NW cor. of Lot 19, Buckeye townsite ..... T.D. 9,457 ft.; preparing to shoot drill pipe.

United North & South Dev. Co.'s No. 1 Unit No. 58, 250 ft. N and 300 ft. W of SE cor. of Unit No. 58 ..... Derrick.

MONTGOMERY COUNTY

Baker et al's No. 1 Benker, D. James Sur. ..... O.T.D. 4,921 ft.; sidetracked 3,823 ft.; sand 4,645-67 ft.; prep. to make D.S. test.

Cooper & Smith's No. 1 Post, Daniel Roper Sur. ..... T.D. 2,827 ft.; washing.

Deering & Frazier's No. 1 Hicks, 660 ft. S and W of NE cor. 565-acre tract, T. Taylor Sur. ..... Rigging up and drlg. water well.

Humble O. & R. Co.'s No. 1 Texas Long Leaf Lumber Co., 466 ft. out of SE cor. of 2,000-acre tract in Walker County, S.L. Sur. ..... Drlg. shale 1,210 ft.

McElroy Oil Corp.'s No. 1 Grogan Cochran Lbr. Co., 6,943 ft. from N line and 900 ft. from W line of 100-acre tract in P. V. Hamblin Sur. ..... Drlg. salt water sand 4,904 ft.

Steen Drlg. Co.'s No. 1 Long Bell Lbr. Co., 440 ft. S and E from NW cor. of Wilson Barker Sur. ..... Top Cockfield 5,815 ft.; sand 5,867-69 ft., sand 5,873-77 ft.; D.S. test 5,855-77 ft. showed 350 lbs. pressure with 2 gals. dist. and 2 gals. mud in 4 min.; coring 5,931 ft.; D.S. test 5,873-84 ft., 575 lbs. pressure, 15 min., 1 joint brown dist., ¼-in. choke on top, ⅝-in. choke on bottom; D.S. test 6,016-53 ft.; showed 23 thribbles salt water, 11 min., 250 lbs.; sidetracked while running pipe; P.B. 2,300 ft.; drlg. 5,760 ft.

NACOGDOCHES COUNTY

Dick Schwab's No. 1 Rambin, J. Simpson Sur. ..... T.D. 4,850 ft.; S.D.

ORANGE COUNTY

Blue Line Oil Co.'s No. 1 Godwin, Richard Ballew Sur., 200 ft. from E line and 150 ft. from NE line of Godwin 20-acre tract ..... T.D. 900 ft.; washing.

Texas Louisiana Oil Co.'s No. 1 Starks, 2,450 ft. N of NW cor. M. Delano Sur. 68, 10,500 ft. E at R/A .... Drlg. shale 3,702 ft.

POLK COUNTY

Howard Dailey et al's No. 1 Z. B. Knox, 1,450 ft. W and 1,920 ft. S of NE cor. of F. Chairs Sur., 1½ mile NE of Corrigan ..... Derrick.

REFUGIO COUNTY

C. B. Bunte's No. 1 Rook, 12,400 ft. from W and 11,500 ft. from N line of Antonio De Lavina Sur. ..... Rigging up.

Cox et al's No. 1 F. W. Bissett, J. Crockett Sur. ..... S.D. 3,659 ft.

Heard-Holland Oil Co.'s No. 1 Peck, 366 ft. N and W out of NW and SW of Bonnie View Subd. ..... Coring hard rock 4,609 ft.; D.S. test 4,528-36 ft.; showed salt water; may drill to 6,500 ft.

Humble Oil & Ref. Co.'s No. 13 O'Connor, 933 ft. NE of No. 12 and 933 ft. NW of No. 11 on 5,545-acre tract in John Keating Sur. ..... T.D. 3,190 ft.; P.B. 3,016 ft.; W.O.C.

Humble O. & R. Co.'s No. 14 O'Connor in John Keating Sur. ..... Drlg. shale 1,330 ft.

G. Jeffries' No. 1 James F. Power, 759 ft. from N and 1,812 ft. from E lines of 500-acre lease in J. J. Garza and J. Vidaurri Sur. ..... S.D. 1,010 ft.

SAN AUGUSTINE COUNTY

Fidelity Exploration Co.'s No. 1 Bryan & Flourney, 1,926 ft. from N and 725 ft. from E lines of Sec. 14, S.P.R.R. Sur. ..... T.D. 2,005 ft.; S.D. to clear title.

SAN JACINTO COUNTY

Darby Jones' No. 1 McBee ..... Drlg. shale 2,910 ft.; no report.

Turnbull & Irwin's No. 1 Foster Lumber Co., 440 ft. W of Shell 100-acre tract and 150 ft. S of Evergreen road in NW part of Wm. Doble Sur. ..... Moving in.

VICTORIA COUNTY

C.R.&G. Drlg. Co.'s No. 1 R. C. Roos, 486 ft. from N line and 1,666 ft. from E line of tract in M. A. Castanon Sur. ..... Drlg. shale 4,570 ft.

Humble O. & R. Co.'s No. 1 Mitchell, 1,401 ft. from NE and NW lines of 5,000-acre tract in E. Benavides Sur. ..... Rigging up.

Petrol Corp.'s No. 1 John Machalic, 1,320 ft. out of S cor. of 135-acre tract, Rafael Mancha Sur. ..... Drlg. 520 ft.

Texas Co.'s No. 2 McFaddin, 9,150 ft. S and 200 ft. E at right angles out of NW cor. of C. M. B. Hoyt Sur. ..... T.D .2,025 ft.; prep. to work over.

Texas Co.'s No. 8 McFaddin, A. J. Gray Sur., 4,600 ft. N of S line, 1,383 ft. from E line of NE cor. ..... T.D. 6,459 ft.; cmtd. plug at 3,480 ft.; abnd.

WALLER COUNTY

Amerada & Stanolind Oil & Gas Co.'s No. 1 Mary Manor, C of Sec. 93, Blk. 1, H.&T.C. Sur. ..... Drlg. hard sand 4,650 ft.

L. W. Capps and C. J. Sloan's No. 1 Vaughn, 1,200 ft. N of Kirby's No. 1 Vaughn, J. MacFarland Sur. No. 46 ..... Drlg. sticky shale 1,100 ft.

WHARTON COUNTY

Pure Oil Co.'s No. 2 Lancaster, 1,320 ft. NW of SE line and 1,476 ft. SW of NE line of tract in Sec. 23, Morris & Cummings Sur. ..... T.D. 5,147 ft.; prep. to wash in.

Pure Oil Co.'s No. 2 Stewart, Morris & Cummings Sur., Sec. 25, 990 ft. out of SW cor. of 160 acres ..... T.D. 7,523 ft.; prep. to start up.

Pure Oil Co.'s No. 1 Wallace Houston, 858 ft. SE of NW line, 1,690 ft. NE of SW line, Sec. 28 (T. W. Heard Sur.) ..... T.D. 6,460 ft.; tested S.W.; abnd.

SOUTH LOUISIANA

ACADIA PARISH

Edwards Drlg. Co.'s No. 1 Daigle, NE cor. of SE of Sec. 34-7s-1e ..... Rigging up.

Rhodes Drlg. Co.'s No. 1 Latrell ..... S.D. 2,280 ft.

Superior Oil Co.'s No. 1 P. O. Hermandes, 990 ft. W, 990 ft. S of NE cor. SE Sec. 34-8s-3e ..... T.D. 8,916 ft.; perforation 7,845-50 ft.; flowing 31½ bbls. hour, 12/64-in. choke, 1,360 lbs. pressure.

AVOYELLES PARISH

Hass & Stokes' No. 1 Hass, from NE cor. SE Sec. 28 go along E line of Sec. 28 2,436 ft. to point on highway, thence 34° E on highway for 386 ft., thence N 87° E for 4,426 ft., then N 45° E 226 ft.... Rigging up.

BEAUREGARD PARISH

Federal Pet. Co.'s No. 1 Lutcher-Moore, 467 ft. S and 467 ft. E of the NW cor. of Sec. 4-6-12 ..... Derrick and moving in rig.

Humble Oil & Ref. Co.'s No. 1 Long Bell, 200 ft. E of W line and 2,640 ft. S of N line of Sec. 11-5s-7w .... Drlg. shale 9,179 ft.

F. W. Martin's No. 1 J. E. Cochran, SE cor. of NE of Sec. 34-4s-12w (W part of county and 6 miles S of Merryville) ..... Drlg. shale 4,040 ft.

CALCASIEU PARISH

Fred Oil Co.'s No. 1 Faisst, 566 ft. N, 300 ft. W of SE cor. of NW of SE Sec. 26-8s-10w ..... Gumbo 2,400 ft.; S.D.
Union Sulphur Co.'s No. 1 Barbe, 2,681 ft. W, 2,647 ft. S of NE cor. Sec. 1-9s-8w ..... Hard shale 8,125 ft.; abnd.
Union Sulphur Co.'s No. 2 Barbe, 279 ft. S and 350 ft. W of NE cor. of SE of Sec. 11-9s-8w ..... Moving in.

IBERIA PARISH

Y. D. Spell's No. 1 Bernard, 5,138 ft. SW cor. along western boundary line, then in NE direction 1,140 ft. along N line of Bernard land, 52 ft. S of well in Sec. 54-12s-7e ..... Drlg. gumbo and lime 3,630 ft.

JEFFERSON DAVIS PARISH

Shell Pet. Corp.'s No. 1 Kratzs, 660 ft. S, 330 ft. W of NE cor. NW Sec. 12-9s-4w ..... D.S. test 8,659-77 ft., 12 min., 5½ bbls. 37 grav. P.L. oil, 70 lbs. pressure; cored to 8,682 ft.; W.O.C.
Tide Water Oil Co.'s No. 1 Mrs. A. Bourgeois, 250 ft. E and 205 ft. S of C of Sec. 28-9s-5w ..... Drlg. sand and gravel 492 ft.

LAFOURCHE PARISH

Barnsdall Oil Co.'s No. 2 Harang Plantation ..... Drlg. shale 1,720 ft.
R. L. Gay, trustee's No. 1 Godchaux, 3,920 ft. N and 1,746 ft. E in common cor. of Lots 34 and 26, Twp. 15s-19e ..... Moving in rig.
Southern Sulphur Corp.'s No. 1 D. L. Lagraize, 800 ft. E of NW cor. of Lot 7, thence 260 ft. S of Sec. 26-21s-22e ..... Spudded and S.D.

PLAQUEMINES PARISH

Venice Corp.'s No. 1 Burras ..... S.D. 40 ft.; prep. to start up.

ST. BERNARD PARISH

Southern Sulphur Corp.'s No. 1 Lake Lery, 400 ft. W. 500 ft. N. SW cor. Sec. 28-13s-15e ..... Gumbo 2,867 ft.; S.D.

ST. LANDRY PARISH

Bailey Gaunce's No. 1 Lewis, 300 ft. N and E of SW cor. of NW of NE of Section 29-5s-6e (workover) ... T.D. 5,017 ft.; S.D.
H. H. Hotchins Lbr. Co.'s No. 1 Whiteman Lbr. Co., 250 ft. out of SW cor. NE Sec. 15-5s-6e ..... S.D. 3,696 ft.

ST. MARTIN PARISH

Texas Co.'s No. 6 St. Martin Land Co., 660 ft. S and 500 ft. W of NE cor. SE Sec. 17-8s-7 ..... Drlg. gumbo 4,802 ft.

ST. MARYS PARISH

Black et al and Edwards Drlg. Co.'s No. 1 Chetimancha, Sec. 34-13s-9e, 219-acre tract approximately 500 ft. at right angles SE and SW lines of tract ..... Drlg. shale 2,035 ft.

TERREBONNE PARISH

Texas Co.'s No. 1-B State-Bay Junop, 2,200 ft. N, 950 ft. E of SW cor. Sec. 27-21s-14e ..... Salt 6,625 ft., T.D.; P.B. 4,060 ft.: drlg. shale 5,729 ft.
Texas Co.'s No. 7 Bay St. Elaine ..... Drlg. shale 3,361 ft.
Texas Co.'s No. 11 Lake Pelto, 1,600 ft. SW of No. 5 ... Driving piling.
Texas Co.'s No. 10 State-Caillou Island ..... Shale 6,090 ft.
Texas Co.'s No. 10 State-Dog Lake ..... Drlg. cap rock 1,660 ft.
Texas Co.'s No. 3 School Board, 2,630 ft. S and 1,384 ft. E of NW cor. of Sec. 16-22s-18w ..... Rigging up.
Texas Co.'s No. 4 School Board, Sec. 16-22s-18w ..... Drlg. shale 2,921 ft.

VERNON PARISH

Robt. K. Williams, Jr.'s No. 1 Llano Del Rio, 1,185 ft. S, 1,000 ft. W of NE cor. Sec. 7-1n-9w ..... Rigged up and S.D.

Wildcat Operations in Louisiana-Arkansas

(Continued from Page 57)

MOREHOUSE PARISH

James A. Noe's No. 1 Dalton, 3,445 ft. N, 805 ft. W of common cor. Sec. 41-21-5e ..... Fishing for D.S. 740 ft.
Zeiger & Bacon's No. 1 Crossett, 400 ft. N, 300 ft. W, SE cor. Sec. 41-23-6e ..... S.D. 2,535 ft.

NATCHITOCHES PARISH

Penn Sou. Pet. Co., Inc.'s No. 1 Chopin Lbr. Co., 275 ft. N and W, SE cor. NE SW Sec. 4-5n-5w ..... Set 10-in. 108 ft.

OUACHITA PARISH

Ark.-La. P. L. Co.'s No. 8 Rea-Green, 2,720 ft. S, 1,750 ft. W, NE cor. Sec. 4-18-4e ..... Set 12½-in. 105 ft.
Carbons Consolidated's No. 4 Cole, 662 ft. S, 1,969 ft. W, NE cor. Sec. 36-20-4e ..... Rigging up.

RED RIVER PARISH

Kincaid & Kelly's No. 1 Ober, 315 ft. N, 257 ft. W, SE cor. NW SE Sec. 5-14-10 ..... Set 10-in. 84 ft.
A. D. Mytiler's No. 1 La. Delta Pecan Co., 1,700 ft. N, 160 ft. E, SW cor. Sec. 27-13-11 ..... Testing 802 ft.
Oynett et al's No. 1 Thomas, 330 ft. S and E, C Sec. 34-13-8 ..... S.D. for fuel 740 ft.

SABINE PARISH

D. D. Alexander's No. 1 Brown est., 330 ft. N and E, SW cor. Sec. 9-9-11 ..... Coring 3,216 ft.
J. F. Anderson's No. 1 Burkett, 135 ft. N, 655 ft. E, SW cor. NW Sec. 10-9-13 ..... W.O.S.R. 1,993 ft.
J. W. Bettis et al's No. 1 Frost Lbr. Ind., 330 ft. S and W, NE cor. SW Sec. 15-9-13 ..... Rigging up.
R. B. Campbell et al's No. 1 Cook Land Co., 150 ft. N, 300 ft. W, SE cor. NW NW Sec. 35-10-12 ..... W.O. cag. 1,586 ft.
G. H. Collins' No. 3 Cranford, 330 ft. S and E, NW cor. SW SE Sec. 20-9-13 ..... Comp. flowing 400 bbls. 1,486 ft.
Earl P. Halliburton's No. 2 Barr, 330 ft. S, 390 ft. E, NW cor. Sec. 15-9-13 ..... Rigging up.
Helena O. & G. Co.'s No. 6 Burkett, 330 ft. S and E, NW cor. NE Sec. 10-9-13 ..... Using acid 1,989 ft.
Zan Lloyd's No. 1 Henderson, 330 ft. N and W, C Sec. 29-9-13 ..... W.O.S.R. 2,031 ft.
H. C. Moulding's No. 2 Alford, 330 ft. N and E, SW cor. NW NW Sec. 18-7-10 ..... Fishing for tubing 2,750 ft.
Dr. O. B. Hicks' No. 1 Neal, SE SW SE Sec. 18-9-12 ... Set 10-in. 40 ft.
Miles & Strickland's No. 1 McGee, 17 ft. S, 26 ft. E, NW cor. Lot 18, Sec. 9-9-13 ..... Washing to bottom 950 ft.
John W. Moffett's No. 1 Logan Oil Co., Sec. 3-9-13 .... Abd. 1,985 ft.
Parker et al's No. 1 Henderson, 330 ft. S and E, NW cor. SE NE Sec. 29-9-13 ..... Set 6-in. 1,498 ft.
L. L. Posey's No. 3 Burkett, 330 ft. S and E, NW cor. NE NW Sec. 10-9-13 ..... W.O.S.R. 1,984 ft.
Preston & Stinron's No. 1 Slay, 660 ft. W, 330 ft. N, SE cor. NW SE ..... Set 10-in. 48 ft.
W. E. Rowe et al's No. 1 Craig, 330 ft. S and E of center Sec. 33-9-13 ..... S.D. 1,300 ft.
J. A. Stinson's No. 1 Whitney Corp., 330 ft. S and W, NE cor. Sec. 8-9-13 ..... W.O.S.R. 2,014 ft.
Stumpff & McFall's No. 1 Paul estate, Sec. 10-9-13 .... Tested S.W.; S.O. 1,976 ft
Windsor Oil Co.'s No. 2 Barr, 330 ft. N and E, SW cor. NW Sec. 15-9-13 ..... Location.

RAPIDES PARISH

Ben Banner's No. 1 Bentley Lbr. Co., 2,640 ft. E, NW cor. Sec. 11-4n-5w ..... S.D. 1,640 ft.
Evans & Collingsworth's No. 1 Hickman, 330 ft. S and E, NW cor. Sec. 40-4-1e ..... S.D. 2,130 ft.

UNION PARISH

Ward & Jones' No. 1 Miller, 330 ft. S and E, NW cor. SW SW Sec. 16-21-2e ..... S.D. 2,107 ft.

Arkansas

COLUMBIA COUNTY

O. F. Whittaker's No. 1 Hall, C SE NE Sec. 10-15-20... Moving in rig.

CONWAY COUNTY

Sou. Union Gas Co.'s No. 1 Feldman, C SW SW Sec. 6-5n-17w ..... Setting 8⅝-in. 2,504 ft.

HEMPSTEAD COUNTY

A. H. Bagnelle's No. 1 Trattner & Rhinehart, Sec. 2-13-26. Drlg. 1,285 ft.

LAFAYETTE COUNTY

Douglas Lawn's No. 1 Camp, 330 ft. S and W, NE cor. SW SE Sec. 14-15-23 ..... Drlg. 1,065 ft.
George W. Harper's No. 2 Bodcaw, 150 ft. S, 550 ft. E NW cor. SW NW Sec. 16-15-22 ..... S.D. 1,216 ft.
C. V. Lenz' No. 1 Foster, 330 ft. S, 150 ft. E, C Sec. 9-15-25 ..... Drlg. 1,750 ft.

MILLER COUNTY

Duluth-Ark. Oil Co.'s No. 2 Beck, 330 ft. S and E, NW cor. SE SW Sec. 34-15-26 ..... Coring 2,809 ft.
Fitzwater et al's No. 1 Norson, SW cor. SE SW Sec. 30-15-27 ..... S.D. 3,177 ft.
King Oil Corp.'s No. 1 C. H. Schroder, 200 ft. N, 330 ft. E, SW cor. SW NE Sec. 24-14-28 ..... Fishing for D.S. 1,925 ft.
C. E. Murdock's No. 1 E. L. Beck, 330 ft. N and E, SW cor. SE SE Sec. 33-15-26 ..... Set 7-in. 2,927 ft.
Frank Roe's No. 1 Olivet, NE cor. NE SE Sec. 4-16-26.. Coring 2,752 ft.
Texarkana Oil Corp.'s No. 1 H. E. Beck, 330 ft. N and E, SW cor. SW SW Sec. 34-15-26 ..... W.O.S.R. 2,923 ft.
Lee Timberlake et al's No. 1 E. L. Beck, 150 ft. N and E, SW cor. NW SE Sec. 33-15-26 ..... Drlg. 800 ft.
J. K. Wadley's No. 1 Deckerman, 200 ft. N, 330 ft. E, SW cor. NW Sec. 24-17-27 ..... Coring 3,550 ft.
E. L. Young, Tr.'s No. 1 Patterson, SE cor. SE NE Sec. 5-19-28 ..... S.D. 3,666 ft.; curing titles.

OUACHITA COUNTY

L. L. McDonald's No. 1 J. A. Robertson, 200 ft. S and E NW cor. NE NW Sec. 25-15-16 ..... W.O.S.R. 2,092 ft.
L. L. McDonalds' No. 1 Arnold & Doyle, 150 ft. N and W, SE cor. NE SW Sec. 23-15-16 ..... Set 10-in. 101 ft.; drlg. 1,500 ft.

UNION COUNTY

E. R. Henderson's No. 2 J. H. Ogden, 330 ft. S and E. NW cor. SW SE Sec. 32-18-14 ..... Arranging to use acid 2,208 ft.
E. R. Henderson's No. 1 Vines, 330 ft. N and W, SE cor. SW SE Sec. 29-18-14 ..... P.B. to 2,161 ft.
Mrs. R. K. Jones et al's No. 1 J. Davis, 330 ft. N and W. SE cor. NW NW Sec. 28-16-14 ..... Set 10-in. 120 ft.
McCreslenn Oil Co.'s No. 2 Atkins, 330 ft. S and W, NE cor. SW NE Sec. 3-18-13 ..... Derrick.
Tubal Pet. Co.'s No. 1 Gaddy, 340 ft. N and E, SW cor. SE NW Sec. 14-17-14 ..... S.D.; W.O. 3,416 ft.

Mississippi

FRANKLIN COUNTY

E. R. Ratcliff's No. 1 Banks, SE cor. SE Sec. 20-5n-2e.. Drlg. 1,250 ft.

GREENE COUNTY

United Gas Public Service Co.'s No. 1 Davis, C NW Sec. 30-1n-5w ..... S.D. 5,960 ft.

ISSAQUENA COUNTY

Pelican Oil & Gasoline Co.'s No. 1 Steel Bayou Corp., 400 ft. N, 350 ft. E, SW cor. NW Sec. 14-12n-8w.... Rigging up.

PIKE COUNTY

B. D. Findley et al's No. 1 State Bank, C SE Sec. 28-3n-7e ..... Drlg. 3,675 ft.

SIMPSON COUNTY

Beavy Corp.'s No. 1 R. J. Beavy, C SW Sec. 24-2n-4e.. Set 6⅝-in. 2,160 ft.

WALTHALL COUNTY

Mutual O. & Gas Co.'s No. 1 Boyd, Sec. 24-2n-9e, SW cor. SW SE ..... Moving in rig.

WARREN COUNTY

Orbet Drlg. Co.'s No. 1 R. L. Parker, 300 ft. E CWL, Sec. 14-14-1e ..... S.D. 3,169 ft.

Louisiana-Arkansas Proven Areas

North Louisiana

CADDO—RODESSA

Company, well, farm name, section and block—	Remarks:
R. W. Norton's No. 1-B J. B. French, 660 ft. S and E. NW cor., Sec. 34-23-16	P.B. to 6,400 ft.
United Gas Pub. Ser. Co.'s No. 1 Deer, 1,320 ft. N and W, SE cor. Sec. 34-23-16	Drlg. 5,039 ft.

SABINE PARISH—ZWOLLE

Alexander & Cane's No. 1 Fogman, SE cor. N½ SW NE Sec. 18-7-11 ..... Drlg. 750 ft.
Ivan A. Allen's No. 1 La. Long Leaf, 330 ft. N and W, SE cor. NW SE Sec. 12-7-11 ..... Rigging up.
Dyer et al's No. 1 McCollister, 330 ft. S and E, NW cor. SW NE Sec. 24-7-12 ..... S.D. 1,100 ft.
Foster & Hartman's No. 1 Bowman-Hicks, 330 ft. S and E, NW cor. NW NE Sec. 10-7-12 ..... Coring 2,326 ft.
E. D. Holcomb's No. 1 Porter, 330 ft. S, 330 ft. W, NE cor. SE Sec. 7-7-11 ..... Using acid 2,540 ft.
M. J. Kissick's No. 1 Barr, 350 ft. S and W, NE cor. SW SE Sec. 6-4-11 ..... Repair rig 2,414 ft.
Magnolia Pet. Co.'s No. 2 Gindratt, 330 ft. N, 330 ft. E, SW cor. SE Sec. 30-8-11 ..... T.A. 2,485 ft.
H. C. Moulding's No. 2 DeLatin, 330 ft. S and E, NW cor. NE SE Sec. 3-7-11 ..... Rigging up.
Monroe Prod. Co.'s No. 4 Sabine Lbr. Co., 330 ft. N and E, SW cor. SE NW Sec. 7-7-11 ..... Tested dry; W.O. 2,426 ft.
Geo. L. Pace's No. 5 Greer, 330 ft. S and E, NW cor Sec. 32-8-11 ..... S.D. for wtr. 1,580 ft.
Geo. L. Pace's No. 1 Garner, 330 ft. N and W, SE cor. SW NE Sec. 15-7-11 ..... Bailing 2,495 ft.
Pelican Nat. Gas Co.'s No. 31 La. Long Leaf, 311 ft. N, 323 ft. E, SW cor. Sec. 29-8-11 ..... Set 10-in. 62 ft.; set 6-in. 2,213 ft.
Pelican Nat. Gas Co.'s No. 29 4-L Co., Sec. 29-8-11.... Tested dry; W.O. 2,660 ft.
Pelican Nat. Gas Co.'s No. 30 La. Long Leaf, 311 ft. S, 323 ft. W, NE cor. Sec. 31-8-11 ..... Comp. pumping 120 bbls. 2,247 ft.
Pelican Nat. Gas Co.'s No. 32 La. Long Leaf, 314 ft. S, 35 ft. W, NE cor. W½ NW Sec. 31-8-11..... Derrick.
Service Drlg. & Royalty Co.'s No. 6 E. E. Smith, 670 ft. S, 1,079 ft. E, NW cor. NW SE Sec. 7-7-10..... Set 10-in. 60 ft.
Ben F. Smith's No. 1 Sabine Lbr. Co., 330 ft. N and W, SE cor. NE NE Sec. 12-7-12 ..... Set 6-in. 2,400 ft.
Tex-La-Ark Oil Co.'s No. 1 Pickering Lbr. Co., Sec. 2-3-12 ..... S.D. 1,050 ft.; repair boiler.
Texas Co.'s No. 7 Stille, 330 ft. S, 330 ft. E, NW cor. SW Sec. ..... Set 6-in. 2,220 ft.

SABINE PARISH—PLEASANT HILL

Bridges Co., Inc.'s No. 1 Moore, CEL NW NW Sec. 5-9-12 ..... T.A. 2,170 ft.

Mississippi

HINDS COUNTY

Alexander & Weaver's No. 1 Simpson, Sec. 25-6n-1e.... Drlg. 1,560 ft.

RANKIN COUNTY

Ferguson, Fuller & Metz' No. 1 Ammona, 350 ft. E and S, NW cor. NW NW Sec. 35-3n-3e ..... Partly rigged and S.D.

East Texas (Border Counties)

CASS COUNTY

United Gas Public Service Co.'s No. 1 Walton, John Coleman Sur. ..... Rigging up.
R. K. Kamon et al's No. 1 Savage, Mary Patterson Sur.. Drlg. 2,560 ft.

HARRISON COUNTY

R. C. Payne et al's No. 1 Lowery, E. D. Spain Sur. ..... Drlg. 3,725 ft.

PANOLA COUNTY

Acre & Rotunda's No. 1 Burnett Lbr. Co., J. H. Mallory Sur. ..... Drlg. 1,850 ft.
Givens & Holloway's No. 1 Wooten Est., Winnie Mann Sur. ..... Drlg. 750 ft.
R. W. Price's No. 1 Crawford, J. A. Williams Sur. ... Rigging up.

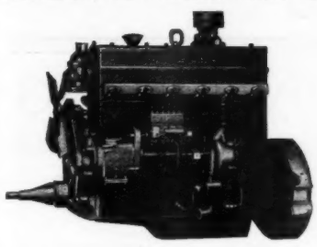
SHELBY COUNTY

Bush Oil Int.'s No. 1 Windham, W. M. Blackburn Sur S.D. 3,366 ft.
Turner & Neil's No. 1 Pickering Lbr. Co., P. W. Harvey Sur. ..... Set 10-in. 65 ft.

NEW AND IMPROVED EQUIPMENT

Guiberson Develops Line of Diesels for Oil Field

The Guiberson Corp., manufacturer of tubing catchers, flexible-cup swabs, tool joints and other oil field specialties now in world-wide use, has perfected and is now introducing, through its affiliated organization, the Guiberson Diesel En-



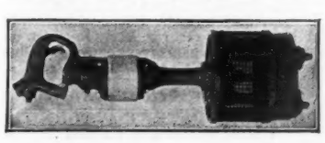
gine Co., a line of Diesel engines for oil-well pumping and other industrial power requirements and for trucks and buses.

The new line of industrial Diesel engines is an outgrowth of the company's Diesel aircraft engine. The special patented feature of the Guiberson Diesel engines is the synchronization of fuel supply, timing and air supply so that all are controlled by one throttle and proper proportions and relations of each of these elements is automatically assured at all speeds. This feature promotes smooth, clean, efficient and economical operation.

G. H. (Doc) Wallace, for the past 14 years works manager for one of the country's largest Diesel engine manufacturers, has been appointed sales manager of the Guiberson Diesel Engine Co. and is beginning the formation of a national selling organization. Allen Guiberson is works manager of the company.

Chicago Pneumatic Making Outside Tube-End Polisher

The new rotary-driven CP external tube-end polisher announced by the Chicago Tool Co., 6 East Forty-fourth Street, New York, is a lightweight, powerful and easily handled pneumatic tool.



It has many advantages over the hand method of filing boiler tubes, then polishing with emery cloth, and according to the manufacturer it cuts costs on a ratio of 4 to 1.

The device is entirely automatic in operation and requires virtually no skill or physical strength. The results are uniform. Ends of the tubes may be polished in stacks without moving them. There are no flat spots and the tool tends to round the outside of the tube.

The cleaner is placed over the end of the tube and the motor started. It then is moved slowly back and forth to cover the surface to be cleaned. The cleaner may be removed from the tube while it is in motion or after it is stopped. It requires practically no attention except the oiling of the motor.

The Chain Belt Co., Milwaukee, Wis., has reopened its office in Houston, Tex., under the direction of J. W. Snavely. The office is at 3118 Harrisburg Boulevard, and mail should be sent to Postoffice Box 1812.

Notes About Trade Literature

The current issue of Nickel Steel Topics, published by the International Nickel Co., 67 Wall Street, New York, gives an unusual amount of space to equipment for production and refining of oil.

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The May-June number of the Lufkin Line, published by the Lufkin Foundry & Machine Co., Lufkin, Tex., contains among its unusually interesting articles one on the "Last Stand of Cattle Barons" in southwestern Texas.

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Engineers and executives responsible for the economical generation of steam in industrial power plants will be interested in the new 32-page bulletin, "Savings Effected by Bailey Boiler Meters," issued by Bailey Meter Co., 1050 Ivanhoe Road, Cleveland, Ohio.

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A new circular describing the use of Dearborn Tannin brick No. 2 in cooling systems for Diesel and gas engines, compressors, condensers, and open and closed systems of all types for the prevention of scale and corrosion, algae growth, etc., will be sent by the Dearborn Chemical Co., 310 South Michigan Avenue, Chicago.

—

"Fifty Reports on the Mechanical Transmission of Power," a book of 224 pages prepared by Robert W. Drake, may be obtained from the American Leather Belting Association, 41 Park Row, New York, for 25 cents. The book, which is free from propaganda, covers the practical plant application operation, and maintenance of all kinds of motor drives, including multiple V-belts, belting, chains and gears. It covers trouble elimination and needed information.

"Make Your Shipping Boxes Advertise Your Products" is the title of an attractive folder produced by the Hinde & Dauch Paper Co., Sandusky, Ohio.

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The Link-Belt Hyper drop-forged side-bar rotary chain is described in a four-page folder issued by the Link-Belt Co., 910 South Michigan Avenue, Chicago.

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The quarterly price list of "R. & H. chemicals for all industries" has just been issued by the R. & H. chemicals department of E. I. du Pont de Nemours & Co., Wilmington, Del.

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A request to the Brown Instrument Co., Philadelphia, Pa., will bring a copy of catalog No. 6,702, describing the company's new automatic control indicating thermometer.

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An eight-page bulletin illustrating and describing the new line of plug-type "Ferrenewo" and "Renewo" valves is obtainable from the Lunkenheimer Co., Cincinnati, Ohio.

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"Compressed Air at Lower Cost" is the title of a bulletin mailed on request by the Worthington Pump & Machinery Corp., Harrison, N. J., giving facts about the Worthington Feather valve compressors.

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Blue Book Part 1 on laboratory thermometers for accurate temperature readings will be sent to those who ask for it by the H-B Instrument Co., Inc., 2518 North Broad Street, Philadelphia, Pa. A.S.T.M. standards for the oil industry are assembled, with full information for guidance in selecting the instrument needed.

Union Supply Properties Acquired by New Company

Louisiana Supply Co. is the successor to the Union Supply Corp., which was established several years ago with head-

Louisiana Supply Co. pipe yards

quarters at Sulphur (Mine), La., as a distributor of oil country equipment and materials in southwestern Louisiana.

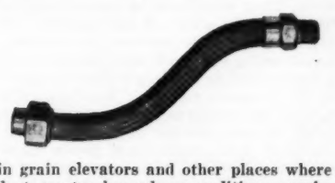
W. W. Lewis, president of Louisiana Supply Co., was formerly manager of the original organization, and Fred Tieman, now treasurer and sales manager, formerly served Union Supply Co. on field sales. Other officers of the new company are: Thomas Murphy, vice president; A. J. Baumister, assistant treasurer; Herbert Tighe, secretary, and Herman Busch, assistant secretary.

The Louisiana Supply Co. has taken over the properties and stocks of the old organization, and is distributing a full line of oil field products throughout southwest Louisiana.

The Earle M. Jorgensen Co., Los Angeles, Calif., has been appointed distributor of Enduro stainless steel by the Republic Steel Corp., Youngstown, Ohio.

Flexible Explosion-Proof Conduit Fitting Announced

Pyle-O-Flex, an explosion-proof conduit fitting that is flexible, has been announced by the Pyle-National Co., 1334 North Kostner Avenue, Chicago. It is adapted to the safe and economical wiring of gasoline pumps and explosion-proof motors in filling stations, bulk gasoline stations, refineries, and for use



in grain elevators and other places where dust creates hazardous conditions requiring explosion-proof installation of electrical equipment.

Being flexible, Pyle-O-Flex obviates the bending and fitting of rigid conduit in limited spaces, with consequent savings in time and labor, and it provides a watertight and vaportight conduit fitting installation. It withstands vibration, and is not only capable of withstanding 500 pounds hydrostatic pressure, but each fitting is tested against leaks at 50 pounds air pressure under water. It is listed by the Underwriters' Laboratories for use in Class 1 Group D, and Class 2 Group G, hazardous locations.

Men Well Known in the Equipment Field

Frank Champion, Los Angeles, Calif., general sales manager of the oil tool division of Byron Jackson Co., went to New York recently in connection with

FRANK CHAMPION

the export sales of BJ drilling and production tools, and planned to sail from New York for Trinidad and Venezuela. Mr. Champion said he could be reached at Apartado 84, Maracaibo, Venezuela, in care of S. B. Schnitter, the BJ representative for northern South America. Returning by way of the Panama Canal, Mr. Champion expects to be in his Los Angeles office early in July.

Roots-Connersville Units Offer Important Features

The Roots-Connersville Blower Corp., Connersville, Ind., is now supplying some of its blowers, vacuum pumps, and gas pumps connected through a variable speed drive to a constant speed motor. It is pointed out by the manufacturers that where variations in the volume are required a unit of this type offers advantages in the process industries.

In the rotary positive type of machine the power consumption varies in almost direct proportion to the volume and the pressure being delivered. Thus the use of a variable speed arrangement permits this economy to be carried through the entire operating range. Savings of this kind, coupled with the convenience afforded by flexibility as to volume and pressure, account for the growing use of this type of drive.

Roots-Connersville equipment arranged in this way is especially suitable for those industries where seasonal peaks or processing technique makes changes in the volume advantageous or necessary as in gas works, oil refineries, etc.

ACQUIRES RUTHS ACCUMULATORS

The Foster Wheeler Corp. has taken over exclusive rights for the sale and manufacture of the Ruths steam storage systems in the United States and Canada. Ruths accumulators will complement the present extensive line of Foster Wheeler power plant equipment. G. M. Cameron, formerly manager of Ruths Steam Storage Co., will be manager of the Ruths Accumulator division of Foster Wheeler.

Preservation of Stripper Wells Is Vital Declares W. J. Brundred of Oil City

By W. J. BRUNDRED
Brundred Oil Corp., Oil City, Pa.*

One of the important provisions of the code was to prevent premature abandonment of wells of settled production. Another provision of all codes was to avoid sales of any product or commodity below cost of production. "Wells of settled production" means stripper wells and, presumably, the intent was for a crude price structure which would preserve them.

The Petroleum Administrative Board is now extending the U. S. Tariff Commission survey on the cost of producing oil to include 1931, 1932 and 1933. Unfortunately, they determine costs by states, and weighted average figures are used for this purpose. The large volume of production of the flush fields is multiplied by their low lifting cost, and the small production of stripper well areas is multiplied by their high lifting cost. The weighted average cost is intended as a guide to determine the price of oil, but the cost or price so determined is such that a stripper well can survive only up to the time that a major replacement or renewal of material may be necessary.

It is essential, therefore, that we use every influence with the Petroleum Administrative Board to have such areas segregated from stripper areas in determining costs and to have such stripper areas alone determine the price for crude, which, while not necessarily preserving each and every small marginal well, will nevertheless preserve any large group of stripper wells.

We are also concerned with knowing what was meant by the term, "prevention of premature abandonment of wells of settled production"—it surely was not contemplated that stripper wells had reached the end of their economic life when a major replacement of material was necessary.

The Petroleum Administrative Board has found in its survey of costs that certain stripper well areas now show a relatively low production cost due to the fact that most of the investment has been charged off through depreciation and depletion deductions. Such areas or properties, however, may be faced in a year or two with the necessity of practically completely re-equipping worn out oil property material. When such a time comes and, due to the charges for amortization of the large investment, such replacement would entail, production costs will register a sharp increase. It would seem, therefore, that the crude price structure should at all times be at such a level as to permit the replacement of worn-out equipment. Wells reach the stripper class before material must be restored, so any other policy would mean that wells reach the end of their economic life not through exhaustion of underground reserves but through exhaustion of the material with which they are equipped.

Underground Reserves

In the application of secondary methods of recovery to the Pennsylvania oil fields, many cores or cross sections of sands have been taken and porosity and saturation determined. Reserves range between 5,000 to 25,000 bbls. to the acre. On a property owned by my company, which was first drilled in the early sixties, reserves range between 12,000 to 20,000 bbls. to the acre. Productive sands in all oil-producing states, if analyzed, will no doubt show substantially the same range of reserves as the State of Pennsylvania.

A few years ago the possibility of abandonment of producing properties never occurred to us. The consumer, at that time, however, was paying prices for refined products which supported crude at such a level as to permit a profitable operation. The price of crude then determined refined prices—the realization on refined products did not determine the price of crude.

The consumer has benefited from a condition which has been ruinous to the stripper well operator. What influences are responsible for this change in price to the consumer? Undoubtedly, the increased use of cracking facilities is a factor but, as I see it, the principal cause has been overexpansion of refining facilities. These overexpanded facilities, operated at part capacity, mean high unit costs—operated at capacity means dumping of excessive inventories and price wars. In either case, the producer has borne the loss.

Overexpansion of retail stations has run concurrently with overexpansion of refining capacity. The constant scramble for additional gallonage which, of necessity, must be diverted from some competitor, has caused such disastrous competition as to result in the decrease in the price of gasoline. The consumer has benefited but the burden has fallen on the producer. Are our vast oil reserves in stripper well areas to be abandoned as a result of uncontrolled competition in the manufacturing branch? Are we to assume that the consumer cannot pay a price for gasoline which will conserve the nation's oil reserves? Surely not! It would seem that control of refining corporations is as necessary a part of any stabilization program as control of production. Price of crude, therefore, should not be based on realization on refined products but refined products should seek their relationship to recovery cost of crude from stripper wells. As a matter of conservation of an irreplaceable natural resource necessary to our manufacturing industry, transportation and national defense, the consumer should be willing to pay such prices.

Labor on Stripper Wells

At the hearings in Washington, April 12 to 14, before the Labor Policy Board of the Petroleum Administrative Board, representatives of labor unions advocated abandonment of stripper wells on the theory that operators of flush production were able to pay higher wages than those operating stripper wells. It is unfortunate that, before such a hearing took place, labor representatives were not furnished with statistics showing how many of the nation's wells were in the stripper class, for surely no right-thinking man would advocate such colossal waste as this wholesale abandonment would entail—a destruction of capital which runs into the billions. Thousands of men would be thrown out of work and would have to be absorbed into other industries. They would not be re-employed in producing the other oil necessary to replace that formerly produced by the abandoned wells, since all that would be required would be opening wider the gates on the present restricted flowing wells without the employment of any additional labor. A vast amount of material from the steel mills, engine and power manufacturers, etc., is used annually in replacement of worn-out material. Abandonment of stripper wells would vitally affect labor in allied industries.

Producers of stripper wells have asked for exemption from the labor provisions of the code. They have pointed out their inability to pay the code scale of wages with crude at its present price level. Their willingness to pass on to labor part of the benefits derived from improved crude prices is evidenced from statistics compiled by H. B. Fell, executive vice president of the Independent Petroleum Association of America, who advises as follows:

"The stripper well labor question has not yet been settled. A study, covering comparable figures for June, 1933, and January and March, 1934, shows that in January, 1934, the total number of employes had been increased 41 per cent by the stripper well operators over June, 1933. In March, 1934, the increase over June was 55 per cent. The total monthly pay roll increased in January, 1934, 77 per cent over June, 1933, while by March, 1934, that increase had reached a trifle over 100 per cent. The average pay per month per man was increased in January, 1934, over the preceding June, 15 per cent, and by March, 1934, 21 per cent."

Labor should realize, therefore, the willingness of the producer to maintain wage scales commensurate with his ability to pay and, instead of advocating the abandonment of stripper wells, should join the producer in his efforts toward seeking cost of recovery for stripper wells, and such adjustment of prices of refined products to the consumer as may be necessary to support such recovery cost.

*Before I.P.A.A., Tulsa, May 17.

H. C. FOUTS DIES

H. C. Fouts, one of the best known oil men in the Gulf Coast, and who for the past few years had been associated with the J. S. Abercrombie Co., Houston, died Monday, May 15, as a result of injuries received in an automobile accident Sunday, May 6, near Liberty, Tex. His small son, who was accompanying him, escaped injury.

CANADIAN CARBON CO.

CALGARY, Alberta, May 19.—Pioneer Carbon Co., Ltd., has been incorporated under Alberta charter with head office at Calgary and $60,000 authorized capitalization. The company is erecting a carbon black plant near Craigmyle, Alberta.

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